CHAPTER VI

TARGETS AND INSTRUMENTS OF INTERNATIONAL ECONOMIC INTEGRATION

VI.1. In the preceding five chapters we have dealt with the essence of international economic relations between autonomous nations. We have also tried to clarify the mechanism of these relations by discussing certain possibilities to change them. After having thus indicated the possibilities to regulate them, we shall now discuss how far we want to regulate them. Such regulation, when aimed at more systematically, is nowadays usually called '*integration*' of the various national economies. Integration may be said to be the creation of the most desirable structure of international economy, removing artificial hindrances to the optimal operation and introducing deliberately all desirable elements of co-ordination or unification. The problem of integration therefore forms part of a more general problem, namely that of the *optimum economic policy*. When making recommendations on economic policy we are actually leaving the territory of objective science or at least introducing outside elements. Since a good deal of economic analysis will have to be used nevertheless we will warn the reader every time such extra-economic elements are being used.

VI.2. It is useful to make some *general remarks* on the field of *economic policy* before embarking upon our special case of integration. Economic policy will be taken to mean the activity of public authorities as such in the economic field.

It therefore excludes the activity of public authorities as producers or consumers, as far as the normal aims of production and consumption are concerned. As soon as more general aims are involved policy begins. There are greatly differing types of policy, however. A first distinction may be made between *qualitative* and *quantitative* policy. By an act of qualitative economic policy we mean every change in the organization or structure of society, as far as of economic importance. By acts of quantitative economic policy we mean changes in the data controlled by public authorities, within an unchanged framework of organization. Examples of changes in organization may be the introduction of a monopoly by law, the dissolution of a monopoly, changes in property rights or the introduction of a new international agency. Examples of changes in data within a given organization are changes in tax rates, in public expenditure, or in the rate of discount of the Central Bank. Data are partly under the control of public authorities, as in the cases just quoted; these will be called *instruments* or instrument variables. The other data are not under the control of public authorities, such as weather conditions, population growth, or technical development.

Some of the most frequently used instruments have been mentioned already: taxes, public expenditure, and the rate of discount. They could be specified and others could be added. A number of examples will be given below.

There are wide differences in the scope and extent of either type of policy: both may be far-reaching or modest in scope. Fundamental qualitative policies may be called *reforms* or even *revolutions* if they change the structure of society in important points; but there may also be modest changes in organization, such as the introduction of collective bargaining or the establishment of a new tax. Also

quantitative policies may be far-reaching or modest. In a depression very important public expenditures may be added or tax reductions applied; in a situation near monetary equilibrium only slight changes in some tax rates may be considered. Quantitative policy in a country with extensive government intervention may use a large number of instruments, say rationing applied to a large number of commodities, detailed price regulations and so on; whereas quantitative policy in a laissez-faire country may have a very limited number of taxes to manipulate.

In the field of quantitative policies a distinction can be made between *direct* and *indirect intervention;* the former being the direct interference with market forces such as rationing and price setting. Important instruments from the international point of view are the ones directly affecting foreign trade: import duties, quantitative restrictions on imports, or currency regulations. Indirect intervention operates before all through *financial policy* (credit as well as fiscal policy). It goes without saying that the introduction of some new type of intervention by itself represents an act of qualitative policy; once it exists, however, the changes in rations, prices etc., are only of a quantitative character. As always there may be borderline cases.

VI.3. An important aspect of acts of qualitative policy is the choice between *centralization* and *decentralization* or rather the choice of the degree of centralization. This choice has to be made inside each country as well as in international economic policy. Inside each country certain functions of economic life will be performed more efficiently when organized centrally while others may better be decentralized. The same problem shows itself in private business as

well as in extra-economic — political, cultural and social — activities. Centralization or decentralization may be defined in the *geographical* sense as well as in the *'functional'* sense: certain activities may be left to lower public authorities — which would be an example of geographical decentralization — or to specialized private organs, each of them national, but acting only in a restricted type of functions. In a way the question of the most desirable economic policy — in particular as far as intervention by public authorities is concerned — may be said to be the very question of what degree of decentralization in economic activities is most healthy. Private enterprise is an example of decentralization.

The main topic of this part of the present book — international economic integration — is intimately connected with the question of decentralization and centralization. The question that will have to be answered is precisely: Which functions in international economic life should be subject to central control and which should be left to individual countries, enterprises or persons?

Some general remarks and *formal directives* may already be given before even the aim of economic policy is specified.

Since economic policy means the handling of instruments by policy-makers it seems to be natural that the degree of centralization wanted will to a large extent depend on the nature of their effect on the well-being of each of the countries concerned. According to their effects instruments may be of four types. If a certain change in an instrument acts in the same direction on the well-being of all countries concerned, it will be called *supporting*, since the use of such an instrument by one country will support the policies of the other countries. If a change in an instrument used by country A acts in opposite directions inside and outside

that country, the instrument will be called *conflicting:* its use by country A conflicts with the objectives of other countries' policies. If the instrument does not act at all on the well-being of other countries, we will call it *neutral.* Finally there will be instruments acting in a mixed way, to be called *mixed* instruments.

An example of a supporting instrument is the level of government expenditure in a general depression or in the case of general inflation: in both cases their effect will be parallel for all countries concerned. In times of depression an increase in government expenditure in any country will be acting favourably on all countries; and in times of inflation a decrease in public expenditure in one country will be wholesome for the other countries as well. An example of a conflicting instrument in case of a general depression is the rate of exchange of any one country. Its lowering will affect the country itself favourably but the other countries, as a rule, unfavourably. Examples of neutral instruments will be instruments of a local character only. The effects of most instruments will depend on circumstances; this is why the distinction made is formal only. The instrument of government expenditures will act in a mixed way, for instance, if certain countries are in an inflationary situation and others in a deflationary situation.

In general there is a strong case for decentralization since it means freedom to groups or individuals which constitutes an element of direct satisfaction. In addition it may avoid costs.

VI.4. Apart from this general argument in favour of decentralization there will be arguments in favour of centralization, primarily applying to the first two types of instruments, for the reason that the other countries have a strong

interest in their handling. This interest is parallel in the case of supporting instruments and opposed in the case of conflicting instruments. The aim of centralization in these two cases will therefore be different: centralized decisions on supporting instruments will tend to *intensify* their use, whereas centralized use of conflicting instruments will tend to *eliminate* or *mitigate* their use. The disadvantages of centralization will only be compensated by important advantages if the character of the instruments under discussion is of an outspoken supporting or of a clearly conflicting character.

In less outspoken cases, i.e. in any case when the instrument is neutral, and often if it has mixed consequences, there is more to be said in favour of decentralization.

VI.5. The *choice of the instruments* of economic policy has to be made dependent on a number of circumstances. It goes without saying that the nature of the problems to be solved will have to be taken account of. This is particularly true for the extent of the problems. The same problem when presenting itself in a modest size may be solvable with modest means but when showing an extraordinary extent may require more fundamental acts. War-time disturbances and similar emergency situations usually require more direct interventions than smaller and more temporary disturbances. During and after the latter sufficient help may be expected from the automatic reactions of economic life. A short supply in only one crop will be followed by a price rise which automatically diverts demand to other products and so solves the difficulty. A general shortage of food cannot be remedied in this way since a general price rise will not divert demand sufficiently.

Apart from the nature and the extent of the problems to

be solved by any form of economic policy the choice of instruments will depend on certain *pre-conceived ideas* of which the extreme examples are *complete regulation* on the one and *complete absence of it* on the other hand. These ideas themselves cannot be divorced from the aims of economic policy, to be discussed hereafter. Historically it may be said that the tendency towards freedom was largest when political power was in the hands of business leaders and that the tendency towards complete regulation exists with military and with communist groups as leading politicians. It cannot be denied that greater emphasis on the interests of the masses sometimes requires more intervention; but it is also probable that the necessity of intervention tends to be overemphasized by those anxious to exert power for its own sake and as a reaction to a lack of power in the past. It is the serious task of economics and sociology to try to find objective criteria for the choice of instruments as often as possible. Some attempts will be found in this text.

VI.6. The relevance of any acts of economic policy depends on the *targets* or *aims* set. The choice of these aims, or *objectives of economic policy* is itself extra-economic, just as the aim of each individual in economic matters cannot be explained by economic reasoning but has to be considered as given. Whereas, however, the objectives one man aims at may, as a rule, be left to himself as long as he does not definitely interfere with the interests of others, the setting of aims to the economic policy of a community of different individuals involves difficult problems. A well-known formula for the goal to be aimed at is the pursuance of a '*maximum welfare*' for the community, or the furtherance of the '*general interest*', but upon closer consideration

these formulae are 'empty boxes' unless further specified.

Human welfare is affected by different elements of which the most important, from the economic point of view, seem to be

(a) those referring to *individual well-being* namely the availability of goods and of leisure, and

(b) those referring to man's *relations to other individuals* namely freedom, justice and peace.

These are solemn words and the reader should excuse them and consider them as a very brief indication of some of the most important complexes of the relevant elements. Also, the list is not exhaustive; and the valuation of the various elements varies in time and diverges between individuals. Some individuals sometimes like the opposites of justice and peace.

If individuals could live independently one of the other the elements under (b) might not come into play and each could strive for his individual optimum of goods and leisure, it usually being so that more goods can only be had if less leisure is accepted. Several circumstances, however, make for mutual dependence of individuals. The bare fact of vicinity introduces the possibility of conflicts and the elements under (b) come into play. This is reinforced very much by the technical possibilities of increasing production opened up by co-operation in the production process. These two forms of dependence make the problem of economic policy extremely complicated, especially because of the inequality in individual capacities and tastes. They destroy the possibility for each individual to strive for his own optimum; common decisions have to be taken and the decisions one individual would prefer differ from those desired by others. They differ because of varying tastes,

differences in insight and wisdom and plain divergency of interests. So far no generally accepted method has been found to reconcile these differences. To be specific and to give an important example, no method is available to decide whether a transfer of one dollar from Mr A to Mr B means an increase in welfare or a decrease. It is much more difficult to say whether a transfer of $ 1 milliard from country A to country B implies an increase in general welfare or not. Still more difficult are choices between more or fewer regulations (which may increase justice but will decrease freedom) or between a strike and its avoidance (the strike may bring greater justice, but it breaks peace). Unfortunately even international peace seems to have a restricted value to certain governments.

At this stage of our knowledge and insight an accurate and generally acceptable formulation is only possible for a few aims of economic policy, whereas other aims cannot so be formulated. A relatively high degree of agreement exists about the '*aims of high production*', i.e. the aims (1) of using all productive resources, and (2) using them in the most efficient way, since the interests of individuals in this respect are largely parallel. Difficulties arise as soon as questions of *distribution* are considered, because of differences about the meaning of justice. Only to the extent that distribution indirectly affects efficiency, more possibilities of agreement arise.

Difficulties also arise as to the *choice of the instruments of economic policy*, the main dilemma then being the one between freedom on the one hand, and the aims (1) and (2), as well as justice on the other hand.

Agreement on these aims is only possible in very outspoken cases; on measures towards a more equal distribution e.g. if the existing inequality is very strong, and agreement

on the use of instruments of detailed intervention only if very strong disequilibria are threatening society.

Briefly therefore the main groups of aims of economic policy may be formulated in the following way:

(1) the use of *all productive resources* implying the *avoidance of instability* in production;

(2) the use of these resources in the *most efficient* way;

(3) a more *equal distribution* of incomes between persons and between countries as far as there is strong inequality, and

(4) the use of *instruments of detailed intervention only in order to prevent strong disequilibria.*

It is in accordance with the above argument that even this formulation contains concepts that are only vaguely determined; at best it could be added that what is understood by 'strong inequality' and 'strong disequilibrium' depends on the development of public opinion and will as a rule be defined by political decisions in the more general sense.

Notwithstanding this restricted set of more or less accepted aims it is remarkable that a relatively well-defined set of rules of economic policy can be derived. This is due to the fact that economic life is permanently threatened by disruptions of equilibrium by variations in crops, new inventions and political events and that the skilful maintenance of equilibrium is already a complicated art of considerable importance to general well-being. In addition the inherent tendency towards strong inequalities is so clear that permanent redistribution with a minimum loss of efficiency is the other main technique required.

VI.7. If it is true that a certain concensus of opinion prevails on the general aims formulated above, it cannot be denied that the big differences in economic policies between the non-communist and the communist countries — already

referred to in section VI.5. — can only partly be explained in this way. It is true that inequalities in the latter countries were larger than in many Western countries and it is true that the disturbances created by the first world war in Russia and by the second world war in the present communist area were large indeed. But there are other countries where this also applies and these countries are not — or shall we say: not yet — communist. Certain differences in history, in national character and in political aspirations — and some pure co-incidences — have also to be accepted as part of the explanation.

The fact of the existence of the two political blocks has unfortunately to be considered largely a datum to present-day problems of economic policy. The time where it could have been avoided by a wiser economic policy (in the widest sense) seems to have passed. There are, thus, wide divergencies in basic economic organization. This also necessarily affects international relations. Centrally organized or at least highly interventionist countries will also show centrally organized or highly regulated international relations. Similarly, less strongly organized countries will prefer less organized international relations. In their intercourse with the first group they will be forced, nevertheless, to organize contacts to some extent also on their part, if only to create the 'opposite numbers' to the civil servants of the centralized countries in the necessary discussions, negociations and executive measures. They may, on the other hand, bring in decentralized elements in the execution inside their own countries to the extent they think desirable. In other terms, international relations between countries of different political structure necessarily will have to be dependent on these national structures and in a way represent some transitory form. The more decentralized

countries cannot choose their relations with centralized countries freely. These relations will not be discussed to any great extent in this book, since political elements will be much more decisive in the first few years to come than will economic factors.

International relations between the more decentralized countries themselves, however, can be shaped more deliberately and therefore according to the principles commonly adhered to by these countries. It is mainly with these relations that we are going to deal in the next chapters.

VI.8. Turning now to the problem of *integration* as a special aspect of international economic policy we are going to discuss this according to the groups of instruments of economic policy. We distinguish two main groups, namely those commonly considered as *national instruments* and those seen as *international ones*. The latter are the instruments directly affecting international transactions; all the other ones will be grouped into the former category. By so doing we are paying a tribute to tradition rather than applying a thorough analysis; the very problem being exactly to what extent national instruments should remain sovereign national instruments. In chapter VII national economic policies will be considered in their relation to integration; the instruments considered being mainly the indirect ones of financial policy and the instruments determining the general price level. As a subsidiary group certain specified taxes will be considered. In chapter VIII the non-monetary instruments and in chapter IX the monetary instruments directly affecting international transactions will be treated.

Chapter X deals with the integration of development and in a concluding chapter the agencies of international economic co-operation will be very briefly discussed.

Chapter VII

NATIONAL ECONOMIC POLICIES AND INTERNATIONAL INTEGRATION

VII.1. The relations between the more decentralized countries of the non-communist world may be shaped, as we saw, according to the principles adhered to by these countries. We tried to formulate the general principles on which their economic policy is based in chapter VI. The problem how to regulate the international relations between these countries should be seen, as will be clear from that chapter, as part of the more general problem of the economic policy of these countries in its totality. The best setting of the coherent groups of problems involved would seem to be: *how should economic policy as a whole* — both 'national' and 'international' — *be organized* in order to attain the goals enumerated in the best manner? By so setting the problem we see that on the one hand national and on the other hand international policies should both show the optimum degree of decentralization. This means that part of the 'national' instruments should just as well be submitted to a certain international co-ordination as certain instruments of international policy, whereas, on the other hand, certain other instruments of international economic policy might just as well be left decentralized as a number of instruments of internal policy. To quote a concrete example of the latter: international trade will be left largely, if not entirely, in private hands, as will the majority of internal transactions. Only some 'strategic' instruments will be handled by the authorities, such as the rate of exchange, possibly certain import duties, etc. in international

policy and taxes, public expenditures, etc. in internal policy. It may prove that some of these instruments had better be handled in a centralized way by the international community. And this class is not necessarily restricted to the instruments of international economic policy. This chapter deals with the need for centralization in handling certain instruments of national economic policy.

VII.2. From the foregoing chapter will be clear that the instruments of national, or internal, policy for which this is true are in particular those that have a *conflicting* or a *supporting character*. Whether instruments have one of these characteristics depends, we know, on the influence they exert on other countries' welfare. Of the main instruments of internal economic policy mentioned in chapter VI those who influence the general level of activity will also influence other countries' welfare to a considerable extent. Instruments influencing the distribution of income between groups or individuals will make themselves felt to a much lesser degree in foreign countries: they will not, as a rule, affect total imports or even imports from certain countries so much.

The aim of influencing the general level of activity will be usually formulated in the wording: *maintenance of monetary equilibrium at a high level of employment*. To maintain monetary equilibrium is equivalent — as we saw in chapter V — to the maintenance of balance between total income and total expenditure, or, again, to the avoidance of the use of 'inflationary financing' for the country as a whole, i.e. for the total of private and public income and expenditure. The exact meaning of the term 'inflationary financing' will be discussed below. In principle, however, monetary equilibrium is possible — as we also discussed

in chapter V — at different levels of employment. Maintaining monetary equilibrium at a low level of employment would mean maintaining stagnation, and to fix demand of imports as well as domestic demand at a lower level than is possible with the country's resources. This is why the second part of the aim was formulated as a high-employment level of monetary equilibrium.

While therefore the use of inflation as a permanent instrument of economic policy is undesirable, attaining high employment from an initial position of low employment may require the temporary use of credit creation. It should also be kept in mind that a regular increase of the money supply of a country in order to meet the increased demand for liquidity at constant prices does not mean inflation in this context. Inflation, according to the definition adhered to here, would be the creation of more money than is needed for financing high-employment production at the desired price level plus financing increased liquidity holdings.

It is not always easy to avoid, at least temporarily, the use of inflationary financing. It may happen that in a period of 'high liquidity preference' (i.e. when people want to hold ample liquid reserves) more money is needed to maintain high and stable employment than in a subsequent period of lower liquidity preference. The presence of ample cash reserves may induce people, once they no longer prefer to hold reserves to that extent, to spend more than their current income and so to cause a boom and inflationary price rises. Under such circumstances taxes should be increased or attractive loans made in order to 'drain' circulation. The policy of high and stable employment therefore has not only to watch income flows but also the composition and use made of assets.

VII.3. There are *two groups* of *main instruments* for this policy and a number of *subsidiary* ones. The first main group is that of financial policy, consisting of public expenditure policy and tax policy. By an appropriate manipulation of these instruments total internal demand will be kept at the desired level and its composition may be made optimal.

The level may be influenced by public expenditures as well as by taxes. If a decline in private demand occurs, e.g. as a consequence of decreased investments, public demand may be increased by higher expenditures. But stimulating private expenditure may also be attempted by a lowering of taxes. It may therefore depend on the *composition of total national expenditure* that is desired whether more emphasis should be laid on one instrument or the other. If important public investment projects are available, the first line may be followed; if however, there are only projects of low priority it may be a better use of the country's resources to stimulate private demand.

Once a tax reduction is preferred to increased public expenditure, the further question arises *which taxes* should be reduced. The first choice may be between direct and indirect taxes. Indirect taxes will influence consumption probably more than an equal change in direct taxes. If more consumption is considered desirable, there may therefore be a case for decreasing indirect taxes. Even investment may be stimulated in this case, if lack of sales kept them down rather than lack of financial means. If, on the other hand, private investment was low because of lack of finance, a reduction in direct taxes may be more appropriate. In times of depression, a reduction in direct taxes might, however, lead to increased hoarding rather than to increased expenditure and then would be less efficient as an instrument of economic policy.

After a decision has been taken as to the general category of taxes that should be lowered, there is another choice to be made about precisely which of the individual taxes be chosen. We are coming back to this question when discussing the situation in individual industries.

VII.4. First we will discuss the *second group of main instruments* of internal economic policy. They refer to the general level of *prices*, *wages* and *other income rates*. This group of economic variables will not as a rule be considered to be instruments in the proper sense, since they are not 'data'. Certain components of these variables are data, however; and sometimes there may be direct government control of prices as well as of wage rates or land rents. A general way of influencing them is to change the *rate of exchange*, probably the most powerful instrument, but an instrument that can only incidentally be used. In addition, this instrument can hardly be said to be an internal instrument.

Whatever the precise instrument chosen, the main point to be made here is again that the regulation of the general price level of a country is an important, and in fact indispensable, element of a country's economic policy. Its economic function is a *regulation*, or adjustment, *of the country's competitive power*. The necessity to adjust may appear from time to time from its general development. If a country can only maintain high and stable employment by permanent inflation this is an indication of the necessity to adjust its competitive power. Of course the better way would be a general increase in its productivity; but this cannot, as a rule, be obtained within a short period. There may be, then, no other way out than a devaluation or a general reduction in prices and income rates.

Of course, the necessity to use this difficult complex of instruments will be the less frequent the smaller the fluctuations in prices in the world's leading countries. The importance of a policy of stable prices in those countries will be clear, therefore (cf. ch. VIII).

VII.5. It may be hoped that an appropriate use of the two groups of main instruments — financial policy and price policy in the above sense — will as a rule lead to a fairly stable development of national income as a whole. An appropriate use presupposes, however, one important condition. *Business men should have and should show understanding for this policy*. They ought not to be alarmed by temporary increases in government activity meant to compensate for their own decreased activity. They seemed to be alarmed in the thirties, especially in the United States, and consequently became reluctant to start investment activity after the 1932 turning point. By so doing they undermined government policy and indirectly national well-being. By such an attitude — if continued *ad absurdum* — any policy, even the best one, may be undermined; it is not constructive. Fortunately there have been profound changes to the good in the understanding shown by business for this type of economic policy.

VII.6. As already observed, the instruments affecting the general level of activity are likely to influence also other countries' well-being, either in the same direction or in the opposite direction as the well-being of the country considered. In the terms previously used they will either be supporting or conflicting instruments and for that reason their decentralized use would probably lead to deviations from the international optimum situation. In periods of

depression an increase in expenditure or a decrease in taxes is not only in the interest of the country itself, but also of the other countries. The country concerned might therefore underestimate the advantages and apply the instrument to a lesser degree than desirable. Or, to say it in other terms, *concerted action* may lead to better results than un-co-ordinated action. The risks for the individual country that by an isolated application of these instruments it would adversely affect its balance of payments and hence its gold reserve, may keep such a country from taking action if there is no concerted action. Similar conclusions may be drawn for the opposite case of general inflation where the interest of all countries is concerted action to decrease expenditure.

While expenditures and tax receipts are examples of supporting instruments of national economic policy, manipulations of the general price level — either by wage policy or by a policy of changing exchange rates — are of the conflicting type. Lowering the general price level will, as a rule, bring competitive advantages to the country that applies it, at the expense of other countries. Or, in well-known terms, they represent a 'beggar-my-neighbour' policy; in still other terms there is sometimes a danger of a 'competition in devaluation', as in the thirties. For these reasons also these instruments should be subject to international supervision in some form or another (cf. Ch. IX).

Using our own terminology of chapter VI, there is scope therefore to more or less *centralize the use of the instruments just discussed*, with a view to intensify the use of supporting and reduce the use of conflicting instruments. When applying this device we should, however, keep in mind that the character of the same instruments may vary according to circumstances. If there is not a general de-

pression, but a depression in a few countries, it may be wise to increase expenditure in the depressed group and to decrease it elsewhere; and even if generally speaking we wanted to reduce the use of devaluation as a policy, there may be circumstances in which some country precisely has to devalue.

While advocating a certain central control of the instruments just discussed we keep clearly in mind the strong resistance existing against such a control. It should therefore be confined to the indispensable minimum required by our analysis, which, it should not be forgotten, is based on the aim of the general well-being of the nations as a group and should be accepted for that reason as a strong argument. This indispensable minimum is that the relevant elements for other countries' well-being are (1) the value of the '*inflationary*' or '*deflationary gap*', i.e. the difference between total expenditure and total income rather than each of these two separately and (2) the *general price level* of each country. Central control should therefore bear on these two crucial elements and one could leave the choice of the components to the countries themselves. Since the inflationary of deflationary gap of the country as a whole equals the gap in the private sector plus the one in the public sector and the first will only be under indirect control of the government, the primary object for central control should be the 'gap' in the public sector (cf. Ch. XI).

VII.7. Even if a smooth development of national income is warranted, problems may nevertheless remain for *individual industries*. There are continuous changes in technology, in tastes, in natural conditions and occasionally these may suddenly threaten some industries. In the long run this may mean that certain plants will have to vanish and factors of

production to move to other industries. In the short run such changes cannot be made without creating grave difficulties. There is a need, therefore, for temporary support to such industries in one form or another. Here the *subsidiary instruments of economic policy* may be useful. They may be *credit policy*, changes in *individual taxes* — to which allusion was already made — or *temporary subventions*. They may even be *temporary import duties*, if these are more easily organized than alternative measures. In special cases where the price mechanism does not work efficiently, quantitative restrictions on imports or on demand generally, or supply or, finally, on both, may even be needed. This is true especially if there are sudden disturbances of equilibrium of some extent in markets where demand and supply are highly inelastic (agricultural markets).

The instruments now under discussion, intended to change the distribution of activity rather than its general level, should be, to a lesser degree, subject to international supervision. Their influence on other countries' well-being is less pronounced and they therefore approach the neutral type of instrument more closely. This device might also be formulated in the following way: relevant to foreign countries and therefore ineligible for decentralization is the total surplus or deficit on public account; much less relevant, however, and hence appropriate for decentralized use is the distribution over the composing items. The irrelevance of this distribution for foreign countries is accentuated by the temporary character recommended for these 'subsidiary' instruments.

Since it is a well-known tendency, however, for such instruments (i.e. taxes, subsidies or quantitative restrictions applied to specific industries) to be used for a longer time than intended originally, it should be emphasized that they

anyhow should not hamper, in the long run, the correct use of productive resources from the international point of view. They should be *temporary* only if they, in order to break a shock, do hamper such a correct use and they should, if not conceived of as temporary, obey certain rules to make sure that they do not *invalidate the international division of labour*. An important example is to be found in the system of indirect taxes as handled by most countries. Usually high taxes (excises) on certain commodities like tobacco products, alcoholic beverages and some other luxuries exist. There are provisions, however, that exports of such products are not taxed to the same extent: there are *exemptions* or *draw-backs* tending to neutralize the tax. At the same time there are '*compensatory duties*' on the imports of such products, in order to equalize the burdens on foreign importers and home producers. Such provisions attempt not to falsify the decisions of producers as to what to produce for the international market. The rule should be, indeed, that the tax burden for different products, when exported, should not be different, so as to let relative costs of production reflect the relative real sacrifices necessary to obtain the various products.

CHAPTER VIII

THE INTEGRATION OF CURRENT TRANSACTIONS

VIII.1. After having discussed certain aspects of national economic policies that are relevant to international relations we are now going to discuss international economic policy, i.e. the handling of *instruments directly affecting international transactions*. In this chapter we will confine ourselves to *non-monetary* instruments and to instruments relevant to the current items on the balances of payments. These items are, as is known, the ones referring to trade and the current transactions of services. Our discussion is devoted to the policies needed to obtain an integration of the current process of production and consumption of a group of free countries, or all free countries; in particular as far as the transactions between nations are involved.

The instruments to be discussed are in particular *quantitative restrictions* (Q.R.) on current transactions and *import duties*. Recent policies of integration, especially in Europe, but also elsewhere, have been primarily concerned with these instruments. On the basis of the main thesis of the free-trade doctrine their *elimination* is considered the main aim of this policy. It should be observed that this is not a complete policy of integration and that it rather represents the *negative part* of such a policy. This is not to deny its importance, however.

VIII.2. As will be clear from the foregoing, and especially from chapter II, this elimination of trade barriers only promises the full results expected from them *if certain*

preliminary conditions are fulfilled; in particular, the full use of all productive forces should be warranted. We take it for granted, therefore, that the individual governments follow a policy of high and stable employment, as set out in chapter VII. As a supplement to these national policies, certain international policies, apt to support stability in activity should be adhered to, namely, policies aiming at *price stability*. Although it is probable that price movements are largely a consequence of movements in activity, there are nevertheless certain forces originating from unstable prices which may, as autonomous factors, threaten stability. These forces are of a speculative character: the tendency to accumulate stocks of raw materials in periods of rising prices and to destock during periods of falling prices being the most important; another being the tendency to overestimate profits in times of rising prices and to underrate them when prices fall, which on its turn influences general investment activity. For these reasons the safest foundation for international economic integration would be an international policy of stabilization of raw material prices.[1]

One way of attaining stable raw material prices may be a set of separate '*commodity agreements*', i.e. agreements on schedules to regulate trade and if necessary stocking and even production of a number of individual commodities. Past history shows that it is not at all a simple matter to obtain and maintain co-operation between the many countries usually involved, with their diverging interests. The question may well be put whether a really satisfactory

[1] The safety thus advocated may be compared with the safety habits in technology: it is customary to require standards, in many cases, of two- or threefold safety. This surplus of safety is not considered superfluous.

solution of this problem is not possible only within the framework of a much more powerful centre of international co-operation than has existed so far; indeed, whether a policy of commodity agreements can not be realised only in a world of war economies or a similar world. This is not to say that the present aversion to such agreements is justified.

Another way to attain a stabilized price level of raw materials may be the introduction of a '*raw material standard*' as discussed in chapter IV. By its automatic operation this standard would avoid many of the great difficulties of a set of commodity agreements and show several advantages in stead. In particular it would leave in tact the forces of demand and supply for the separate commodities. On the other hand there would be the possibility, if necessary, to operate schemes for some commodities showing strong disequlibria.

VIII.3. Assuming, then, that national employment policies are such as to guarantee the use of all, or nearly all, productive forces, the optimum *division of labour between nations* will be obtained by free trade with few exceptions. It follows that the best policy in the present circumstances, where for various reasons a number of impediments to trade exist, is the abolition of these obstacles. It consists of two parts, namely the *elimination of quantitative restrictions* or quotas, now called 'liberalization of trade' and the *elimination of import duties*. This elimination cannot be a sudden one. The process of adaptation requires time. Workers have to be re-trained; capital equipment has to be transformed. Without this retraining and this transformation they would be unemployed, i.e. they would not contribute anything to production, which is worse than

contributing in a protected industry. The process of elimination should be of the order of length of the minimum period of training, or transformation. Losses of transition would be completely avoided if only new young generations of workers had to be trained for the new industries and if only annual re-investment had to be redirected. But the longer the period of transition, the greater the losses due to a non-optimal division of labour between nations. The process of elimination of Q.R. and tariffs should therefore be of such duration as to make the total loss a minimum. Intuitively, since the complete regular replacement of workers and equipment may take some 20 years, periods of some 10 years have therefore been chosen to represent the most desirable period.

VIII.4. Certain *exceptions* are generally admitted: agricultural production has to be maintained to a certain extent for strategic and for social reasons. Infant industries may be protected temporarily; here mostly a period of five years is taken as acceptable. Nevertheless it may be questioned whether import duties should not always be avoided and *subsidies* be applied where protection is considered legitimate. Subsidies, in particular as a lump sum meant to cover part of an industry's fixed costs, do not affect marginal costs and hence do not 'falsify' prices. They have the political advantage that their payment has to be a deliberate act and cannot be hidden from the public. Only in cases where the administration of subsidies would be more complicated, and hence more costly, than the administration of duties, may the latter be preferred.

VIII.5. The general abolition of import duties by a high-tariff country will affect the competitive position of the

country. The general price and wage level of such a country will be higher than that of a low-tariff country. In order to maintain the competitive position, and hence the balance of payments equilibrium, the country has to be permitted to *adjust its exchange rate* accordingly.

VIII.6. There are, in principle, *two ways* of reaching a state without trade impediments. Q.R. and duties may be lowered in all sectors of economy by parallel successive steps; or they may be abolished successively in different sectors. The latter method has been called the method of *partial integration*. Its well-known example is the *European Coal and Steel Community*, where all Q.R. and duties have been eliminated at once between the six countries concerned (Belgium, France, Germany, Italy, Luxembourg and the Netherlands). Clearly the situation created by partial integration is one of disequilibrium. Wages in a high-tariff country will be higher than they could be without tariffs. In the integrated sector production will be less attractive in such a country, tending to reduce the volume of production by more than a correct international division of labour would require. Only after the tariffs in the other sectors also have been eliminated, would equilibrium be restored. If integration of the other sectors is postponed too long, tensions may become too strong: there may be attempts to lower wages in the integrated sector which, from the social point of view, would only be acceptable after the general level of prices (and hence of the cost of living) had become adapted to a general low-tariff situation. Partial integration should be followed as soon as possible, therefore, by integration of other sectors as well, or by general reductions in tariffs.

VIII.7. So far we have only discussed measures of *negative* integration, i.e. policies directed towards the elimination of certain instruments of international economic policy. It is sometimes believed that these are sufficient to obtain the consequences of a better division of labour between nations and a higher standard of life. It may be that these consequences develop automatically; but this will be a slow process which may be accelerated by *positive action*. This positive policy of integration consists of two elements. First, there is a need for certain *supplementary measures* in order to *remove inconsistencies* that may exist between the duties and taxes of different countries. With free trade between a number of countries it is desirable that *duties* and *excises*, e.g. should not be different. Also too great differences in direct taxes may be undesirable, although they are less disturbing than differences in indirect taxes. Certain adjustments will therefore be needed.

Secondly, there is a need for positive action in the field of *production*. The optimum division of labour is a complicated matter, implying reduction of the number of types produced by one plant, specialization of plants on special types and a distribution of the market. Questions about the supply of parts to assembling plants arise, etc. It may be left to the free forces of competition to arrive at a satisfactory situation, but probably it will be a quicker way if such a reorganization program is taken up deliberately and prepared in detail. This does not mean that such action cannot be private. It should be, if possible; but the governments may stimulate it and act if no private action comes about.

VIII.8. The question may be put what the *probable extent* of the improvement in standards of life as a consequence of

integration will be. So far little has been done to estimate it. The discussions have been almost entirely qualitative. Nevertheless it seems indispensable for any action that some idea should exist as to what the consequences are likely to be; if only to compare advantages and costs. Detailed studies for separate industries are badly wanted. Some light may be thrown upon this aspect also by macro-economic estimates. The only attempt known to the author has been made by Professor P. J. VERDOORN[1] who confined himself to an estimate of the shifts in trade patterns that may arise as a direct consequence of an elimination of tariffs only. The restriction is twofold: possible consequences of the elimination of Q.R. are disregarded and no attempt is made to estimate the indirect consequences—those working via a change in the organization of production. This latter may be the most important change to be hoped for and hence Prof. Verdoorn's estimates are minima anyhow. Also they do not try to estimate the change in average productivity (and hence real income), but only the shifts in trade. Even so they are interesting. As will be clear, the problem has to be specified much more before even an attempt to solve it can be made. The countries involved, the common tariff they apply to the outside world and the measures they take in order to maintain balance of payments equilibrium have to be specified. In the table below the results have been given for the hypothetical case that the six countries of the Coal and Steel Community were to unite into one customs union, where the tariff applied to other countries equals the average of the tariffs of the six countries and

[1] Welke zijn de achtergronden en vooruitzichten van de economische integratie in Europa en welke gevolgen zou deze integratie hebben, met name voor de welvaart in Nederland? Praeadvies 1952 voor de Vereniging voor de Staathuishoudkunde.

TABL

TRADE AND ITS PRESUMABLE CHANGES AS A CONSEQUENC
COAL AND STEEL COMMUNITY
(Figures for 1951; finished products only; f

Importing countries	*Exporti*		
	Netherlands	*B.L.E.U.*	*France*
Netherlands		363 (— 8)	73 (+1
B.L.E.U.	186 (— 4)		174 (+2
France	71 (+11)	167 (+20)	
W. Germany	198 (+33)	118 (+15)	151 (+2
Italy	25 (+ 6)	48 (+ 4)	69 (+1
All Schuman-countries together	480 (+46)	696 (+31)	467 (+
Rest of the world	986 (—82)	1170 (—71)	2472 (—
Total exports	1466 (—36)	1866 (—40)	2939 (+

where balance of payments equilibrium is obtained by an adaptation of exchange rates. The changes in trade estimated by Prof. Verdoorn on the basis of a number of hypotheses as to elasticities of demand and supply, are given in brackets, whereas the trade pattern for 1951 is given for reference (cf. table VIII).

)F A CUSTOMS UNION BETWEEN THE COUNTRIES OF THE
N MILLIONS OF $

ssumptions made see text and original publication.)

untries				
W. Germany	*Italy*	*All Schuman-countries together*	*Rest of the world*	*Total imports*
244 (+31)	28 (+ 6)	708 (+43)	615 (—32)	1323 (+11)
165 (+17)	27 (+ 5)	552 (+44)	477 (—36)	1029 (+ 8)
234 (+21)	114 (+24)	586 (+76)	1334 (—14)	1920 (+62)
	114 (+24)	581 (+97)	786 (—43)	1367 (+54)
126 (+16)		268 (+39)	546 (+11)	814 (+50)
769 (+85)	283 (+59)	2695 (+299)	3758 (—114)	6453 (+185)
859 (—82)	1062 (—22)	7549 (—285)		7549 (—285)
628 (+ 3)	1345 (+37)	10244 (+14)	3758 (—114)	14002 (—100)

Chapter IX

MONETARY INTEGRATION

IX.1. After having discussed the use to be made of the instruments of economic policy that directly influence, as such, current transactions between nations, we will now deal with the *monetary instruments*, i.e. with the techniques of international payments and their integration. From the nature of things and their treatment in the analytical chapters it will be clear that current transactions may as well be directly influenced by any regulations of their payments; transactions that cannot be paid for having little chance to be repeated. The central question behind this theme is of course, what organization of international payments deserves preference. From Chapter V in particular it will be clear that this organization has to depend on the fulfilment of certain equilibrium conditions, without which a payments system cannot work. We will come back to these conditions after a while.

Assuming that they are fulfilled it is clear that the simplest and therefore theoretically best organization of international payments would be the introduction of a *world currency*, a very appealing idea, much also to the layman. With a world currency no transformation of one type of money into another would be necessary and all the trouble connected with it — changes in exchange rates and their risks, inconvertibility — could be avoided, it seems. It is often forgotten that such a world currency could only work if certain rather rigorous conditions of 'good behaviour' are fulfilled (which some people think they could get rid of under a world currency) and that if these con-

ditions are fulfilled, a system of convertible national currencies would work smoothly just as well. The main condition is that there should be monetary equilibrium for each separate area, i.e. equality between income and expenditure, as far as such an area would not receive deliberate 'help' from others or would have reserves at its disposal. For the word 'area' we could also read, in this connection, 'group of families', or 'group of enterprises', or finally, 'one family' or 'one enterprise'. A world currency, in other words, would not help any individual or any group to overcome a deficit in his or its finance, if nobody was inclined to help.

In a way this would therefore be a rigorous means to enforce monetary equilibrium on those who have no reserves; but this is the very reason why most national governments would not like to hand over their sovereign rights to create money; they want to be free to make deficits if their policy implies such deficits. Only if there would be complete political homogeneity between the national governments and the central financial authority, could no difficulties arise. This implies that agreement could be obtained, at any time, on the extra help that certain governments should receive or on the amounts some governments would have to make available to others. The necessary prerequisite therefore would be that there be political unity already: that the machinery to deal with such questions existed and worked sufficiently smoothly.

Apart from these conditions it is doubtful whether in a world *threatened by wars* even the set of allied countries could permit itself the 'luxury' of one common currency. Such a currency would be upset by any more general attempt at capital flight, say from threatened areas. No

new investments would perhaps be made at all in such areas if the world currency system made it possible to use savings for investment in remote parts of the world without any permission. Some distribution in 'watertight' compartments as far as capital movements are concerned would seem indispensable.

IX.2. If, on the other hand, for current transactions and the permissible capital transactions taken together, the condition of monetary equilibrium is fulfilled, a system of national currencies can yield without much trouble almost the same services as are expected from a world currency. There may be convertibility for these transactions and hence no hindrance of normal intercourse.

It cannot be denied, however, that then the problem of *changes in exchange rates* does remain; a problem with several aspects. On the one hand the possibility to change rates gives an opportunity to regulate the price level of separate countries in order to adapt their competitive position to changed conditions. On the other hand it means the existence of certain risks for trade, especially if the changes can be large. It is not easy to construct a system without any drawbacks. The system of *flexible exchange rates* has the advantage of smooth and hence small changes, but the disadvantage of speculative deviations which it is difficult to eliminate completely and the disadvantage of arbitrariness in short-term policy. During the later depression years of the thirties it was advocated under the impression of the wide price movements which it was hoped would be avoided by changes in exchange rates. Upon closer consideration and in the hypothesis of a better anti-cyclic policy experts have since the war generally turned towards a system of fixed rates which would only need

incidental adaptations; and this has been made the basis of the International Monetary Fund.

IX.3. Since, in our terminology, changes in exchange rates are conflicting instruments of economic policy, they should be under some control of an international agency, and their use should be restricted. Such is the theory of the Bretton Woods Agreement on which the International Monetary Fund is based. The practice so far has been that not very much 'control' has been possible. There is of course some hesitation to use the instrument, since devaluation will hardly be considered a glorious performance of the country applying it, but when applied it is almost autonomously applied. Perhaps the only conceivable brake on too frequent and too big changes could be a set of sanctions in the field of credits.

A prerequisite of a minimum of changes in rates is, as was already observed, equilibrium in the balances of payments. Apart from a complete regulation of all transactions — not very attractive to Western countries — this will, in the short run, only be possible if sufficient reserves are available. These may partly be centralized in an international 'equalization fund' such as the International Monetary Fund.

In the long run equilibrium can only be maintained if, as was set out in Chapter VII, national economic policy is one of monetary equilibrium at a high level of employment. This not only implies a certain financial policy, directed towards monetary equilibrium, but at the same time a certain *price and wage policy*, directed towards the maintenance of competitive power. Only with such a price and wage policy will it be conceivable to avoid changes in exchange rates. In many countries recent trends have been

towards a great rigidity in wages and prices, as a consequence of increased organization of the labour market and of the markets of many industrial and agricultural products. Adaptability is further hampered by cost-of-living clauses in labour contracts and similar attempts to maintain the purchasing power of incomes under all circumstances. The question may be put whether this is, in the end, a desirable policy. Experience in the Netherlands gives some courage to those who believe that an improved understanding of the functioning of the economy from trade unions and employers' unions may make it possible to reduce price and wage rigidity. The workers should be also confident that if adjustments are necessary they will be applied to all groups in an equitable way. Such confidence can only exist if there are certain standards of decency in economic negotiations, together with a well-balanced political system in which all groups of the population participate. Without such possibilities to reduce price and wage rigidity there will be no chance, apart from adjustments in capital movements, to avoid adjustments in exchange rates.

IX.4. *Capital movements*, in fact, may have an important equilibrating function. *Short-term* capital movements were already implied, to some extent, when we spoke of the functions of reserves and of an international equalization fund. Private short-term capital movements will be possible as far as trade credits can be somewhat adapted to the situation. The other types of private short-term capital movements, which played an important role in the quiet periods of the nineteenth century, are generally considered less helpful in a world where fresh disturbances may come up for political reasons. They may, then, take the form of 'hot money', moving nervously from one financial centre

to the other and often doing more harm than good. In the present time of restricted freedom of capital movements they have been more or less eliminated and, therefore, are not able, on the other hand, to exert any equilibrating force either.

Long-term capital movements remain, both private and public. Although these usually will have another primary object they nevertheless do or can also have a function in the maintenance of equilibrium in the balance of payments. It is only natural that countries with a surplus of capital formation supply capital to countries with a deficit in capital formation. By a surplus of capital formation we mean a surplus in relation to the investments that should be made at home, judged from an international economic point of view, taken in the widest sense. If for political or psychological reasons, say fear of war risks, such a capital transfer does not take place in the private sphere, there may be scope for public action. Some of the well-known disequilibria of the post-war time ('dollar scarcity'; or the Italian balance of payments) may in this way be remedied to some extent.

In order that capital movements be an equilibrating and not a disequilibrating factor, certain conditions have also to be fulfilled regarding the distribution of a country's assets and liabilities over the various '*degrees of liquidity*'. The amounts due for amortization should correspond to the amounts available every period of time. Difficult situations have sometimes arisen because of lack of such correspondence. Germany in 1931 had short-term debts against illiquid assets. The 'sterling balances' accumulated during World War II in a number of countries of the Commonwealth should, from the debtor's standpoint, have been long-term debts, since there was no possibility for

Britain to pay them off in a short period. There was a tendency with the creditor countries, however, to spend part of the balance in a short time, especially as far as they wanted to apply them for reconstruction purposes. This lack of correspondence has to be removed before sterling can be made convertible, either by a change in the status of the balances or by compensatory provisions such as foreign loans.

IX.5. The Second World War caused heavy *disturbances in financial equilibria* that have, so far, only been partly overcome. Perhaps the most important single disturbance was caused by financing war expenditure by Great Britain — just referred to — which made it necessary for that country to sell considerable amounts of foreign investments and to incur important debts with some countries of the Commonwealth, notably Egypt, India and Australia. These debts, already referred to above, amounted to some 3 ½ to 4 milliards of sterling at the end of 1945. The sale of assets implied an important loss of interest and dividend income to the United Kingdom, throwing the current balance of payments out of equilibrium.

In large parts of the world current items of the balances of payments were equally thrown out of equilibrium as a consequence of deficit financing, itself a consequence of decreased productivity, increased needs and the presence of abundant means of payments. From the international point of view this deficit financing could, of course, only go on as long as the countries concerned were prepared to exhaust their gold reserves and as long as foreign governments were prepared to supply credits or grants, but the pressing character of the needs accumulated during the war created that preparedness. Since it was felt that foreign

currency should not be spent on luxuries or semi-luxuries, trade and payment were subjected to numerous restrictions. As far as these restrictions were of a monetary character, their aim was to impose economy on the use of hard currencies, in particular on the use of dollars. In 1947 a first attempt was made at restoring, by decree, the convertibility of sterling into dollars. In order to break the first shock a loan of about $4 milliard was accorded by the United States to the United Kingdom. Nevertheless the operation was not successful. Demand for dollars so much surpassed supply of them that the loan was exhausted very rapidly and monetary restrictions had to be re-established.

IX.6. With the gradual improvement of productivity and the aid supplied by the *Marshall Plan* (or European Recovery Plan, ERP), adding up to about $ 20 milliard, in a period of about 4 years, the European countries, united in the Organization for European Economic Cooperation (OEEC), were able to restore mutual convertibility in 1950. This was effected by the establishment of the European Payments Union (EPU), prolonged in 1952 and 1954, which introduced a system of inter-European clearing of current payments. Deficits of a member country A with respect to another member country B could be financed with surpluses with regard to some third member country C. Countries showing a deficit with the group as a whole received credits in EPU units up to a certain amount: beyond that limit they partly received credits and partly had to pay in gold. The proportion of gold increased as the cumulated deficit grew and beyond a further limit no further credits were granted. Creditor countries, on the other hand, had to give credit to the EPU up to a certain amount, then would receive an increasing proportion in

gold. The group could not operate without some external aid, however; an initial reserve was granted by the United States, which was later increased. Nevertheless, by 1954 the position of the group as a whole was very near to equilibrium. Convertibility for current items with regard to the dollar for a number of European countries would seem possible at the moment of writing (summer 1954).

Re-establishment of such convertibility for the stronger among the European countries would, as we have seen in Chapter V, bring some of the weaker countries in a more difficult position and some provisions would have to be made in order to help them solve their problems. Looking at the world at large, outside Europe, a number of underdeveloped countries remains with more or less serious balance of payments problems, especially in Latin America. A general system of convertibility throughout the non-communist world, at least as far as current items on the balances of payments are concerned would have to be based on three main elements. First, a programme of capital transfers based on a comprehensive scheme of development programmes should be drawn up; (b) the strong countries should effectuate further reductions in tariffs with a view to develop world trade and (c) thirdly, the weaker countries should follow more orthodox financial policies which might be facilitated by the first and second parts of the programme.

The process towards convertibility has to be in line with the process towards the realisation of free trade. A country, or group of countries, in process of revalidation will, at any moment during that process, have a certain degree of 'hardness', which only gradually increases. It may use this hardness in either of two ways; it may either increase the convertibility of its currency or it may increase the degree

of liberalization in its trade. It can, however, only permit itself more convertibility at the cost of less freedom in trade, or more freedom in trade at the cost of less convertibility. The best way to use its degree of hardness so far attained is to have a certain harmony between these two virtues; and only if the 'hardness' reached is complete will it be possible to restore completely both convertibility and freedom.

Chapter X

THE INTEGRATION OF DEVELOPMENT

X.1. So far international economic policy has been discussed on the basis of a given distribution of resources, i.e. land and capital, over nations. As was discussed already in chapter I, this distribution is far from satisfactory, however: it is extremely uneven if calculated per head of population. This unevenness is partly due to artificial impediments to the movement of the factors of production, especially to the movement of population. For another portion it is probably due to differences in mental attitude and abilities between nations. However that may be, the extreme inequality is becoming a source of important future tensions. Traffic has increased, as have communications generally; people are more and more becoming conscious of the great differences and less and less prepared to take them for granted. They are helped in this attitude by communist propaganda. A complication is the increasing rather than decreasing divergency of standards of life: whereas some young countries among the underdeveloped are struggling with the problems set by their newly obtained independency and thereby are stagnating in economic development, the leading developed countries are increasing production even more rapidly than before. This divergency in standards of life threatens political unity in the non-communist world, in the world at large as well as inside Europe.

X.2. It has been believed that there are automatic forces at work towards an equalization of welfare. One of the well-known arguments is that of the so-called 'factor price

equalization'. The argument says that specialization of wealthy countries on capital-intensive industries and of poorer countries on labour-intensive industries will make it possible to pay the same wage rate and the same interest rate in both types of countries. This specialization, it is maintained, only requires free trade in final products which might take the place of movements of population or capital. This argument has only limited validity, as has been shown by further research. It is not of a general validity and depends on the figures involved. If the differences in capital intensity between industries are smaller than the differences between countries the equalization of wages and interest is not possible. What is also relevant in this context is that some of the more capital-intensive industries produce products that cannot be transported at all and have to be produced inside each country (electricity, traffic services, 'dwelling services').

An even greater difficulty arises if the capital intensities of the various conceivable industries are each of them higher than the capital intensity of the country (i.e. the ratio of the quantity of capital available to the quantity of labour). In such a case (cf. also section 11.5) not even all labour can be employed for lack of capital. In such a situation we may speak of an '*absolute scarcity of capital*'.

It may be safely stated that as long as factors are not permitted to move much more freely than today, not very much can be hoped for an equalization of wages and interest rates or even for a full employment of labour. The only solution for the problem of diverging standards of life is in a more intensive movement of factors. Essentially, what is needed is the integration of the process of development; the growth of a country should not be considered a problem only regarding that one country and to be ac-

complished practically with the country's own investments. It is part of a world problem of equilibrated growth. In this connection it should be recognized that the problem is partly one of population policy. If populations in the poorer countries had increased less rapidly, their welfare would certainly have been higher. One indispensable element of the solution consists of the recognition of this fact and the willingness to apply what the Indian government calls 'family planning'.

X.3. In some quarters it has been believed that the standards of life of the poorer countries could be raised, so to say, by decree. It was believed that prescription of higher wages and equalization of labour conditions generally, would be a road towards eliminating 'social dumping'. This is a misunderstanding of the economic forces at work. The main effect of such measures will be to reduce the number of workers that can at all be employed in such countries. Higher standards of life can, for the populations as a whole, only be obtained out of direct aid or out of increases in production. A considerable rise in production can only be obtained by considerable increases in capital invested, training and by spreading of technical knowledge. Direct aid for an enormous population such as in a country like India would have to be so large, if the remedy had to come from such aid, that it would be out of the question. Whatever contributions can be obtained should be used for investment as far as possible and even then very considerable amounts would be needed (cf. X.4). The investments needed most are of the 'basic' type, i.e. for the improvement of the productive basis of the country: land improvement, irrigation, supply of energy, improvement of the transport system and of education and housing. Many of these in-

vestments are hardly remunerative in the private sense of the word. But they appear to be the decisive element which makes industrialized countries attractive to further investment. Once they are there, all production is easier.

It is virtually impossible to increase capital formation inside the underdeveloped countries in any way sufficient to meet the demands which only a modest development would put to it. The reason is the low average income in the countries, of which little can be saved. This is a self-evident phenomenon observable inside every developed country also: the poor do not save. Only the high incomes could and do save; but their numbers are very small in these countries. Of course no attempt should be neglected to increase savings; but it would not be realistic to expect much from this source.

X.4. If the serious problem we are discussing is to be treated at all seriously there should at least be an attempt at programming, for the next five to ten years, what would seem to be a reasonable target. We are only at the very beginning of such programming. Inside the countries, programmes of investment are being executed on the basis of the present resources. In the international agencies whose task is nearest to the task we have in mind, a series of studies have now been made as to the capital requirements needed under various assumptions. An attempt at choosing a definite programme among the alternatives presented has not been made and still less an attempt at procuring the means needed. The responsibility is not yet clearly recognized by the agencies of economic co-operation so far in existence and lacking this recognition, there is more decentralization than seems appropriate. The attempts made so far at estimating the capitals needed under the

assumptions of putting a halt to the divergency of standards of life do show anyhow that these capitals are very considerable. The estimates for total investment needed range from $10 to $15 milliards annually, of which some $5 milliards are supplied by the countries themselves and some $2 milliards by the various agencies which are in operation. There would be a gap of $3 to $8 milliards per annum. This is a few per cent of the combined incomes of the developed countries: nevertheless it is a very considerable amount.

There is little prospect that the missing amounts can ever be invested by private investors. Political uncertainty is a first handicap; the unwillingness of many underdeveloped countries to admit private enterprises from the developed countries, unfounded though it may be, another. Perhaps the most important factor is, however, that many of the most urgent investments would not be of the self-liquidating type. All these considerations point to the desirability of new methods of financing, of which the most open form would be the establishment of an '*international investment budget*'. Public opinion will have to get accustomed to the idea that these sums will simply have to be supplied as grants, in the common interest of all concerned.

The establishment of a common investment budget creates huge problems of various kinds: political and administrative. The first basic principle should be that the sums involved should be used efficiently and this raises all sorts of questions concerning the standards of efficiency in different countries and the ways to avoid national sensitivities.

The second basic principle should be that the contributions to it should be equal for persons of equal real incomes in the various countries.

These two principles would, when adhered to, at the same time be the most powerful and direct means to educate public opinion in the basic concepts of international co-operation and responsibility. On the one hand people would be reminded permanently and personally of some of the main tasks of the international community, and, on the other hand, they would get accustomed to being treated individually according to one and the same international standard of taxation. The institution of the common international budget would, it may be added, be a logical continuation of a similar process of centralization inside many of the member countries.

Chapter XI

THE AGENCIES OF INTERNATIONAL ECONOMIC CO-OPERATION

XI.1. In the preceding chapters a system of international economic policy directed towards integration was described. The degree of centralization needed for the execution of the corresponding tasks was also discussed. We will now discuss what agencies will have to be charged with these tasks: to what extent will the existing national agencies be able to perform them, to what extent will they have to be switched over to existing international agencies or have they already been switched over? To what extent, finally, will there be a need for new international agencies? This problem of the organization of international economic policy is ultimately connected with the problem of political integration, which may be said to represent also a problem of 'optimum centralization'. A politically integrated area is the ideal area for the application of an integrated economic policy and vice versa; the two aspects can hardly be divorced. In this respect it is useful to distinguish between the integration of the economies and the integration of economic policy itself. An integrated economic policy presupposes the existence of a 'common policy' or a 'harmonized policy'; and part of the integration process therefore consists of a discussion between partners, which policy they are able to follow all of them. The common policy has to be, by necessity, a compromise; the best compromise will be one which can be based on certain scientific principles of consistency. Even then, of course, the common policy may be less interventionist or more

interventionist, according to the prevailing tastes in this respect, and according to the circumstances. In times of serious disequilibria a more interventionist policy could be preferred than in times of equilibrium.

There are, unfortunately, many discrepancies between the composing elements of which the ideal degree of co-operation was assumed for a while. The peoples — or only the governments, or both — may not be prepared yet to co-operate to the extent which might be desirable for purely economic reasons. They also may not be prepared to co-operate to the extent to which their own long-term interest would seem to require political integration. In all such circumstances other solutions than the optimal ones will have to be accepted, if only temporary or as a first step. And we should not exclude the possibility that experience about co-operation would in the end have to teach something to all concerned, also to the advocates of integration. Instead of a central organ for a certain function, only a co-ordination of the policies of decentralized organs, or only consultations in particular circumstances may be chosen. Our discussion in this chapter will be based on the assumption that the desire for co-operation exists; it may accordingly sometimes be biassed in order to contribute to further development.

Tasks of local or national interest only should of course be left to local or national organs: this is a generally accepted democratic principle. As was set out in chapters VI–X, it is primarily where one government may adversely or favourably affect the interests of other nations that a central agency will be needed. And it is conceivable that certain agencies should be regional in the sense of embracing a group of neighbouring countries only instead of all countries concerned. As far as an agency would have a

task with regard to a 'conflicting' instrument of economic policy (the first case just mentioned), its task may primarily be a supervising one; in this case, as we set out previously, the abolition of the use of the instrument may be the best form of centralization, which requires supervision. In the second case, the one of a supporting instrument, a more active task may be needed. Since many instruments may alternatively be conflicting and supporting, both tasks have often to be envisaged. Agencies should be created, as is implied in the foregoing remarks, according to the instruments of economic policy rather than to the aims of that policy. Each instrument will have to be handled with a view to its contribution to all the targets of policy; and each target will have to be attained with the help of several instruments. If there were an agency for each target, an enormous confusion would be created as to who would have to decide on the use of a certain instrument. It is correct therefore that there are agencies supervising tariffs or exchange rates, being instruments. It would not be correct to have an agency dealing with employment policy, which is a target; instead there should be agencies which decide upon public expenditures, taxes, etc. which may be the instruments of economic policy. The agency dealing with expenditures would have, however, to base its decisions not only on the employment target, but on other targets as well. Even then every target could be taken care of provided the number of targets does not surpass the number of instruments.

Instruments and agencies may finally be subdivided into general and partial ones: the general ones having to do with economies as a whole and the partial ones with certain sectors only, as e.g. coal and steel production. It will be clear that the well-being of the sectors may depend to a

very high degree on the handling of general instruments. Partial agencies may have a vital interest therefore in the creation of certain general agencies which handle instruments of importance to them.

From our survey of economic policy in chapters VII–X it has become clear that general agencies will be needed in particular for:

1) the supervision and reduction of trade restrictions;
2) the regulation of raw material markets;
3) the supervision of the convertibility of currencies;
4) the supervision of monetary equilibrium and employment policy;
5) the supply of capital for development and
6) the regulation of migration.

In principle, all these tasks should be performed on a world basis, although some may also be subjected to co-operation on a regional basis, under supervision on a world level. In view of the unhappy controversy between the communist and the non-communist countries the co-operation between only a restricted number of countries may prove possible. Regional integration may be useful, if certain instruments of economic policy are only used by a regional group of countries: this may be so either because other countries prefer not to use them or are not able to use them. A condition that must be fulfilled is of course that the nature of the problem to be solved be also regional and not world-wide. Regional regulation of a market with world-wide competition e.g. would not be possible.

In principle agencies have been created by the United Nations for each of the six main tasks indicated; but various difficulties have been encountered.

XI.2. *The supervision and reduction of trade restrictions* should have been the task of the *International Trade Organization* (ITO), which has not, however, come into existence, despite extensive preparatory work; mainly because of the reluctance of the United States to accept the amended charter. Although the tasks with regard to trade restrictions have been taken over by the *General Agreement on Trade and Tariffs* (GATT) it cannot be said that the process of reduction of restrictions has been very successful. This applies both to quantitative restrictions and tariffs. Two main factors are reponsable for these difficulties: (i) the unwillingness of many countries to go faster into the direction of free trade and (ii) the extremely complicated technique adopted to negotiate reductions in tariffs. The common root to both causes is the divergency of interests connected with the existence of tariffs. There is a tendency therefore to maintain certain tariffs of vital importance to some industry and a reluctance, on the part of governments, to accept simple general schemes of reduction of tariffs. Lack of determination and of a somewhat broader outlook on these problems remains another handicap to integration.

In Europe the OEEC has been fairly successful in reducing quantitative restrictions between member countries. In many countries more than 90 per cent of imports is 'liberalized', as the abolition of Q.R. is called. The gains have not been permanent, however, in certain cases, where new difficulties in the general financial position and consequent balance of payments difficulties have led to 'deliberalization'. These experiences, especially in the case of France, point to the necessity of more co-ordination in the field of financial policy. This co-ordination might well be organized in a separate agency (cf. section XI.5.) instead of

in ITO itself, as was originally intended; the same may be said with regard to 'commodity agreements' (cf. section XI.3.); and consequently a more permanent organization with largely the same tasks as GATT would then be sufficient. Still it would be desirable if other, and more efficient, methods of reduction of tariffs were adopted.

XI.3. The *regulation of raw material markets* is in principle entrusted to the *Food and Agricultural Organization* (FAO), as far as agricultural products are concerned, and to some more partial and some more temporary organizations, like the *European Coal and Steel Community*, the *Wheat Agreement*, the *International Tin Study Group* and others, for separate commodities and the *Raw Materials Conference* created after the Korean crisis. It is too early yet to judge the results that have been and may in the future be reached by the European Coal and Steel Community. Its problems are more regional anyhow. A considerable degree of success has been obtained with the Wheat Agreement which succeeded in keeping prices of wheat at a stable and moderate level since 1949. The activities with regard to raw materials generally have not been too promising. It has not been possible to avoid the 'Korean boom' in their prices and the subsequent fall. During negotiations on separate raw materials too restricted viewpoints — mostly those in the direct national interest of the negotiators — have been prevailing. Various reports by experts invited by the Secretary-General of the United Nations, stress the desirability of a stabler price level of raw materials. This applies both to the reports on cyclical fluctuations in general and to the report on this subject in particular. With the existing machinery of organizations much more could have been attained if the

governments had been prepared to commit themselves to bolder projects.

The question may, however, be repeated (cf. section IV.7.) whether not a much simpler solution of some of the most important aspects involved could be reached by the creation of a 'raw material standard', i.e. the acceptance by some central banks, at a fixed price, of raw material bonds as a monetary reserve. These bonds, as has been set out, would have to represent the property of a 'basket of raw materials' of a fixed composition. The reader may be referred to the section just quoted for further explanations.

XI.4. The *supervision of the convertibility of currencies* and a number of related tasks are the tasks of the *International Monetary Fund* (IMF) which represents an international reserve bank, though with only limited competence and very limited means. Among the international institutions created by the United Nations the Fund is no doubt the best prepared and the best equipped, qualitatively speaking. The organization is staffed with a large number of the best experts, supplies an excellent documentation and its analytical reports (both published and unpublished) are of very high quality. As has repeatedly been emphasized by experts, however, the competence and means at the disposal of the IMF are, however, much too restricted. One group of experts, reporting to the U.N. Secretary-General, contrasted the Funds reserve of about $3 milliards with the temporary need of dollars that might arise in a moderate depression which they estimate at $10 milliards. These experts therefore rightly advocated an increase in the quota to supply by the member countries and a more liberal use of the means.

As long as most of the relatively strong European currencies were not even convertible into dollars there was scope for such regional organizations as the *European Payments Union* (EPU) which constituted convertibility between those European currencies (for current payments) and introduced an automatic system of short-term credits to members. Also here the problem of the extent of available reserves was one of the most important to be faced.

In a way the payments system of the *Sterling Area* yielded similar services to a large member of countries inside and outside the British Empire. Even if, gradually, the point seems to be reached where a restricted convertibility of sterling and of a number of continental European currencies becomes possible, the need for some credit facilities to the remaining inconvertible countries is evident and it may be hoped that somewhat wider competences will be given to the IMF to this effect. As set out before, however, the solution of the convertibility problem has to be found in a combination with long-term capital transfers and with internal measures by a number of the countries concerned.

XI.5. *The supervision of monetary equilibrium and employment policy* is less clearly the task of an existing agency. Annual discussions are now being held in the *Economic and Social Council* (Ecosoc) of the United Nations, on the basis of extensive reports asked from the governments. Although such a discussion in public may certainly have some positive influence on the governments that may be 'in default', there is no direct competence of any institute to give directives to the governments concerned. This seems to be too weak a construction for such an important aspect of economic policy.

A similar situation prevails at the European level. There have been discussions on the internal and the external financial stability of the co-operating countries; and in case a country shows either an accumulated deficit or a surplus of a certain size in EPU, it will have to explain its policy to the other members. Such an explanation will be required especially if the country considers import restrictions in connection with its balance of payments situation. These explanations and the directives that have been emitted to some countries have not, however, led to a clear employment policy on a European level. Even the financial policy in the more restricted sense of maintaining balance of payments equilibrium is only loosely co-ordinated. More specifically, the problem of structural unemployment has not been the subject of any serious attempt to co-operate at an inter-European level.

XI.6. In the field of monetary equilibrium and employment policy, our hint that agencies should be constituted according to the instruments of economic policy they should handle seems to have some special scope. In fact, more than one instrument is involved and their handling should perhaps be separated. On the other hand, the instruments involved are not only important to the realization of monetary equilibrium, but also to the long-term aspects of employment, and to welfare generally, i.e. what is usually summarized as 'development'. When we consider some of these instruments a little more closely, we have to keep this interconnection in mind.

The most powerful instrument in maintaining monetary equilibrium as well as in regulating employment is evidently *public finance*. Our analysis has shown the necessity for international integration also in this field. An agency super-

vising the main features of public finance, with the power to prescribe their inflationary or deflationary gap would seem the minimum which from the purely economic view-point would be desirable. Only as far as political preparedness to co-operation would fall short of this requirement, less centralized methods, such as consultations, should be attempted.

A 'power to prescribe' a certain deficit or surplus could only be established as far as certain sanctions were introduced as the same time. Such sanctions could be of a twofold nature: they could be the exclusion from credit facilities for the weaker countries and the non-participation in certain international projects of investment for the stronger countries. A strong country that would not co-operate in the desired way might be excluded from participation, or given a smaller share, in the physical execution of some international projects.

A powerful instrument in financial integration would no doubt be the existence of a '*common budget*'. Participation in the common budget could itself already be adapted to whatever requirements of a monetary character could be made: a country in a state of deflation could be permitted a deficit whereas a country in an inflationary state could be required to have a surplus in the common budget. The expenditure side of the common budget would open the opportunity to increase or decrease any country's participation in international projects just quoted.

XI.7. The task of *supplying capital for development* pertains to the *International Bank for Reconstruction and Development* (IBRD), or 'World Bank'. The insufficiency of this supply has been discussed widely in recent years, even if account is taken of the partial schemes auch as the *Colombo Plan* for the British Empire and some adjacent territories,

the *Technical Assistance* of the U.N., the *Point Four* program of the U.S. government and some others. The limitations to the Bank are qualitative as well as quantitative; the financial aid supplied consists of loans, and the resources of the Bank have to be found, apart from the Bank's own restricted capital, in the open capital market. Another U.N. agency has therefore been envisaged, the Special United Nations Fund for Economic Development (SUNFED), which would be able to supply grants. The budget so far proposed would amount to only ¼ milliards of dollars, which is small in comparison to the capital needed if development of the underdeveloped countries is to be stimulated sufficiently to overcome the prevailing divergency in living conditions (cf. section X.1.). Here also therefore the idea of the Common Budget would seem to be a natural one, able to co-ordinate the policies in this field much more forcefully. Part of the activities would have to be directed towards increasing the supply of technically skilled staff of which the deficiency is one of the major bottlenecks in development at the present time.

Also at the European level a separate agency for financing development has repeatedly been proposed. For a solution of the problems of Southern Italy in particular such an institution would be of much importance. The case may well be considered a test case for European unity.

An international *regulation of migration* seems even more difficult to realise than the activities already mentioned. With respect to migration the international situation is utterly unsatisfactory: international co-operation squarely broke down several times. Perhaps the biggest single cause of this lack of success is the fast increase in population in the underdeveloped countries; some form of 'family planning' will be indispensable, in the interest of all con-

cerned. Difficult problems will have to be solved, but a dogmatic attitude will not contribute to any solution. A broad view and an open mind will be necessary for all spiritual leaders concerned. Once the problem of population control has been recognized, the regulation of migration will be the smaller task.

XI.8. If we try to summarize our findings and to draw some broad conclusions on the agencies of international economic integration, we may say that important starts have been made. The existing international agencies are nuclei of co-operation around which the agencies needed for the future must 'crystallize'. But they are too small, grown somewhat haphazardly, with only little of the co-ordination our analysis would suggest to be necessary. Even so they already represent an impressive piece of activity, the purely technical difficulties of which are already only too easily underestimated by the general public. If we have criticized their results, this does not mean that their restricted success is their own fault. For the overwhelming part the fault lies with others. In many cases it is not the international 'machinery' which is lacking, but it is the preparedness of governments to use it in the appropriate way. In the larger part of international negotiations it is the short-term or direct national interests which are taken as a criterion rather than the long-term and indirect interest, or international interests as such. It will be difficult for representatives of national governments to diverge very much from these narrower interests because institutionally they are forced to stick to them. The cause for so little progress often is the very existence of national governments. To some extent therefore public opinion and its political expression in the parties will have to take the initiative and will have to

enforce the institution of international parliamentary and governmental agencies. Because of the technical complexity of any such activities it will often be necessary for national governments and administrations, who are the best-equipped institutions, to do the jobs, but they can only do so if they have the strong support of public opinion. Two centres of action would seem the most promising, therefore, namely such broad-minded individual initiatives from government quarters as led to the Marshall Plan, the Colombo Plan or the Schuman Plan on the one hand, and initiatives by political parties and ad hoc organizations to educate public opinion on the other hand. Both should base themselves at least partly on such scientific analysis of the problems as attempted in this volume, an analysis, it is hoped, which helps to see which instruments of economic policy are most in need of centralization.

Our analysis on this point has confirmed many viewpoints which at present govern the endeavours to integration made at the European level as well as, less clearly, at the world level. They have confirmed the desirability of a reduction in quantitative restrictions and in import duties; the desirability of a positive integration of production, of a certain unification of indirect taxes, of convertibility of currencies and of an international policy of development. They have also confirmed that for functions of a more local or national character decentralization would seem desirable. In addition to all this the further conclusion has been reached that an essential element of integration will also have to be a higher degree of centralization in financial policy. This latter conclusion seems to be in accordance with what a long debate on internal economic policy has also taught, namely that with more centralization in financial policy many other instruments of economic policy can be left decentralized.

LITERATURE

The purpose of this list is a very restricted one: to indicate a few titles to those of the readers who want to have an 'entrance' to modern economic literature in the fields touched in this text. Each of the publications mentioned contains further literature. The titles are followed by a brief characteristic for the reader's orientation.

American Economic Association (H. S. ELLIS and L. A. METZLER ed.), Readings in the Theory of International Trade, London 1950 (1953) (collection of some of the best scientific papers published during the last 20 years on the most important problems in the field of theory).

R. F. HARROD, International Economics, Cambridge 1933 (1947) (brief text on theory of international trade for students of economics).

J. E. MEADE, The Balance of Payments, London 1951 (elaborate text, in simple language, on the international aspects of economic policy).

J. E. MEADE, Problems of Economic Union, London 1953 (brief discussion, without mathematics, of fundamental questions of integration).

G. MYRDAL, Toward a More Closely Integrated Free-World Economy (Columbia University Bicentennial) (to be published). (Economic, political and sociological discussion of present state of integration policies.)

G. HABERLER, Currency Convertibility, New York/Washington 1954 (brief text on one of the topics of the day).

OEEC, Europe, The Way Ahead, Paris 1952 (example of 'progress report' by one of the centres of integration).

In addition the following reports by experts invited by the U.N. Secretary-General may be recommended:

1. National and international measures for full employment; report by a group of experts appointed by the Secretary-General, Lake Success (United Nations, Dep. of econ. affairs) 1949.
2. Measures for international economic stability; report by a group of experts. New York (United Nations, Dep. of econ. affairs) 1951.
3. Measures for the economic development of underdeveloped countries; report by a group of experts appointed by the Secretary-General of the United Nations. New York (United Nations, Dep. of econ. affairs) 1951.
4. Commodity trade and economic development; submitted by a Committee appointed by the Secretary-General. New York (United Nations, Dep. of econ. affairs) 1953.

APPENDIX I

INTERNATIONAL TRADE UNDER CONSTANT RETURNS IN A VERY SIMPLE MODEL

In appendices 1 and 2 some basic theorems of the theory of international trade will be discussed for those who want to go into the rigorous theoretical foundations of our subject matter. The treatment, although exact, is very simple still and only represents an introduction to modern theory in two of its aspects. The mathematics used is mainly simple algebra and arithmetics in appendix 1 and graphical analysis in appendix 2. The theory of international trade is a vast body of theorems bearing on situations and problems which show many aspects. The discipline has grown rapidly in recent decades and the need for co-ordination becomes stronger and stronger. To the author it seems that four aspects in particular deserve attention since they profoundly influence the structure of the problems. These four aspects could be said to be:

(a) the 'monetary' aspect (M): is full employment (F) presupposed or is unemployment (U) accepted as a possibility?
(b) the 'technical' aspect (T): is production technology assumed to be rigid (R) or are the production factors assumed to be substitutable (S)?
(c) the nature of 'compartments' (C), i.e. the units of production considered: are they industries connected with groups of products (P) or representing only certain activities (A)? An example of the latter approach, rather

common in the theory of international trade, is the procedure which only considers the imports of finished products and combines imports of raw materials with the exports of the corresponding products; then only 'processing', an activity rather than a product, is made the basis of study.

(d) the number of 'compartments' (N): is there only one (1) per country, or more (j)?

Summarizing the aspects by the letter symbols indicated we may have

Aspects	M	T	C	N
Possible assumptions	F,U	R,S	P,A	1,j

A large number of combinations is possible and has in fact be dealt with by various theorists[1]. In our two appendices we will deal with two models which might both be characterized by the symbols:

$$F \quad R \quad A \quad 2$$

meaning that in both cases full employment will be assumed throughout, a rigid relation between input and output will

[1] Of some recent models the following characteristic may be given in our symbols:

P. A. Samuelson, 'International Trade and the Equalisation of Factor Prices', The Economic Journal LVIII (1948) p. 163 and subsequent discussion by J. Tinbergen and J. E. Meade in Metroeconomica: model F S A j.

M. Fleming, 'On Making the Best of Balance of Payments Restrictions on Imports, The Economic Journal 61 (1951) p. 48 and subsequent discussion by J. Tinbergen, 'Four Alternative Policies to Restore Balance of Payments Equilibrium', Econometrica 20 (1952) p. 372 and J. Tinbergen and H. M. A. van der Werff: model F R A 1(j).

F. Machlup, 'International Trade and the National Income Multiplier', Philadelphia, 1943, J. J. Polak, 'An International Economic System', London, 1954, and L. A. Metzler, 'A Multiplier-Region Theory of Income and Trade', Econometrica 18 (1950), p. 329: model U R P 1.

be supposed to exist, the nature of the compartments is that of activities (i.e. the imports of raw materials are disregarded as parts of imports) and there are two industries per country. The only difference is that in appendix 1 production processes are considered in which the relation between 'output' and factor input is a constant and the same for successive units of product ('constant returns'), whereas in appendix 2 this relation is variable, admitting 'decreasing' and 'increasing' returns. In appendix 1 a number of features are to be found which are characteristic for both classical theory and for modern 'linear programming', but in the simplest form conceivable. It may be an easy introduction to both and in particular also to Professor FRANK D. GRAHAM's 'Theory of International Values' (1948). In appendix 2 some use is made of indifference curves and production theory; it represents a generalization in some respects and a limitation in others (the influence of boundary conditions, very important in appendix 1, is almost disregarded, as was usual in neo-classical analysis).

From the foregoing remarks it will be clear how elementary the appendices are in comparison to the whole body of the theory of international trade. They do throw some light on the 'main thesis' of free trade theory, however, and may stimulate the reader to further study.

The model to be discussed first will use arithmetics and simple algebra. It is given for the case of *one factor* of production (labour), two countries 1 and 2 (upper indices) and *two products* 1 and 2 (lower indices), produced in two different industries, also indicated by these lower indices. It is assumed that the number of hours of labour a_j^i needed to produce, in country i one unit of product j

remains *unchanged* whatever the number of units produced. The four figures will be taken equal to

$$\begin{bmatrix} a_1^1 & a_2^1 \\ a_1^2 & a_2^2 \end{bmatrix} = \begin{bmatrix} 1 & 1.1 \\ 2.4 & 2 \end{bmatrix}$$

in our numerical examples.

Two types of situations will be considered: an '*open*' situation in which the two countries are in connection with a world market, large in comparison to their production, at which the two products have a price = 1. This model may be useful for the study of 'small countries'. A '*closed*' situation will also be considered, where only these two countries exist; here still one price, p_1, will be chosen equal to 1, since only relative prices matter in our problem.

The total number of workers in both countries, to be indicated by W^1 and W^2 is given (in our examples $W^1 = 10$, $W^2 = 20$) and it is assumed that they are always all of them employed. The number of workers in each 'compartment' (i.e. an industry in a country) will be indicated by w_j^i. Sometimes it will be assumed that there is only a *limited 'capacity to produce'* c_j^i in each compartment, i.e. that $w_j^i \leqq c_j^i$ is a condition imposed on the number of workers. The reason may be a limitation in some capital goods (with infinite life time and completely written off). It is assumed that there is *free competition* between employers leading to a wage rate l^i in each country which equals the marginal product of labour. The employers may not have any income at all as a consequence of this competition.

In the 'open' problems demand for the two products evidently is infinitely elastic; any quantity can be sold 'on the world market' that cannot be sold at home.

With the 'closed' problems this is different; it will be assumed that demand satisfies two conditions:

(i) total income is spent; no more, no less;

(ii) the ratio of the quantities demanded of both products is a function (equal in both countries) of the ratio of their prices. Indicating by:

p_1^i and p_2^i the prices in country i of products 1 and 2,

y_1^i and y_2^i the quantities produced,

x_1^i and x_2^i the quantities demanded,

we will have the following relations:

(a) Income equals expenditure:

$$y_1^1 p_1 + y_2^1 p_2 = x_1^1 p_1 + x_2^1 p_2 \qquad (1)$$

$$y_1^2 p_1 + y_2^2 p_2 = x_1^2 p_1 + x_2^2 p_2 \qquad (2)$$

(b) Supply equals demand:

$$y_1^1 + y_1^2 = x_1^1 + x_1^2 \qquad (3)$$

$$y_2^1 + y_2^2 = x_2^1 + x_2^2 \qquad (4)$$

It is well known that of these four equations, one is a consequence of the others; only three are independent.

(c) Relative demand a function of relative prices:

$$\frac{x_1^1}{x_2^1} = \frac{x_1^2}{x_2^2} = c\,\frac{p_2}{p_1} + c_0 \qquad (5), (6)$$

where c and c_0 are constants.

(d) Supply follows from number of workers:

$$y_1^1 = a_1^1 w_1^1 \qquad y_2^1 = a_2^1 w_2^1 \qquad (7), (8)$$

$$y_1^2 = a_1^2 w_1^2 \qquad y_2^2 = a_2^2 w_2^2 \qquad (9), (10)$$

(3) All workers are employed:

$$w_1^1 + w_2^1 = W^1 \qquad w_1^2 + w_2^2 = W^2 \qquad (11), (12)$$

Here it has been assumed that prices p_1^1 and p_1^2 of product 1 are equal in both countries, and p_1^2 and p_2^2 as well. Without import duties this is correct, since we neglect transportation costs.

If import duties are introduced, prices need not be equal any more in the two countries. We will use the symbols p_1 and p_2 to indicate 'world market prices' and equations (1) and (2) will still hold good, since they may be interpreted to indicate foreign exchanges only, if they are written in the form:

$$(y_1^i - x_1^i)p_1 + (y_2^i - x_2^i)p_2 = 0, \qquad i = 1,2,$$

where the expressions in parentheses represent net export surpluses.

Internal prices will now be influenced by import duties; indicating the duties levied as the ratio between the price inclusive of duty and the price exclusive of duty, and writing for this ratio τ_j^i we have:

$$\tau_j^i = \frac{p_j^i}{p_j} = \frac{p_j^i + t_j^i}{p_j}$$

where t_j^i represents the absolute value of the duty. Relative demand will now be different from what equations (5) and (6) indicate.

Import duties will be assumed to be levied only by country 1 on product 2 and by country 2 on product 1, since in our numerical example country 1 has a comparative advantage in producing product 1 and country 2 in producing product 2 and hence they will have to export these products if any. They could, of course, nevertheless impose an import duty on these products it they wanted to keep their prices above world market level inside their

countries, but no such price discrimination between home market and exports will be assumed here.

Relative demand equations then become, if $\frac{p_2}{p_1} = \pi$:

$$\frac{x_1^1}{x_2^1} = c\,\pi\tau_2^1 + c_0 \tag{5'}$$

$$\frac{x_1^2}{x_2^2} = \frac{c\pi}{\tau_1^2} + c_0 \tag{6'}$$

The problems to be considered are the production and consumption patterns of both countries in the open as well as the closed situation, under conditions of free trade and protection. In particular the main thesis of free trade will be proved, that under free trade the value of production at free-trade prices will be larger than under protection. It will also be shown that this is not necessarily true of the value of expenditures at free-trade prices. We will discuss our subject matter by presenting a series of exactly defined partial problems.

PROBLEM 1: *open situation; no capacity limits; free trade.* World market prices are 1 for both products and are also prevailing inside both countries. Value created per hour will be equal to $1/a_j^i$ in each compartment. For country 1 it will be higher in industry 1 than in industry 2; wages will be bid up to $1/a_1^1 = 1$ and no workers can be employed in industry 2; wages will be, for the same reason, 0,5 in country 2 and no workers will be employed in industry 1. The production pattern will be:

$$\begin{bmatrix} y_1^1 & y_2^1 \\ y_1^2 & y_2^2 \end{bmatrix} = \begin{bmatrix} 10 & 0 \\ 0 & 10 \end{bmatrix}$$

and the employment pattern:

$$\begin{bmatrix} w_1^1 & w_2^1 \\ w_1^2 & w_2^2 \end{bmatrix} = \begin{bmatrix} 10 & 0 \\ 0 & 20 \end{bmatrix}$$

The value of production will amount to 10 in either country

PROBLEM 2: *open situation; capacity limits; free trade.* As an example we take capacity limits to be:

$$\begin{bmatrix} c_1^1 & c_2^1 \\ c_1^2 & c_2^2 \end{bmatrix} = \begin{bmatrix} 7 & 5 \\ 13 & 9 \end{bmatrix}$$

Consequently, no more than 7 workers can be employed in industry 1 in country 1; the other 3 will have to be engaged in industry 2; the wage level will be $1/1.1 = 0.91$; in country 2, 9 workers will be employed in industry 2, the remaining 11 in industry 1 and the wage rate will be $1/2.4 = 0.42$. It appears that the capacities in the industries with a comparative advantage enter as additional boundary conditions into the problem. The capacities in the other industries would only do so if total capacity were insufficient to employ all workers.

This problem is mainly intended to illustrate that limited capacity may act as a brake on the adaptation process from, say, a state of protection (cf. problem 3) to a state of free trade (problem 1).

PROBLEM 3: *open situation; capacity limits; protection.* Suppose that for historical reasons (i.e. for reasons originating from the situation when transportation was much more expensive) a certain volume of production exists in the industries with comparative disadvantages. What import duties are needed to guarantee the continuation of

this production? Let the capacity limits, which now have a different function from what it was in problem 2, be

$$c_1^1 = \infty \qquad c_2^1 = 6$$
$$c_1^2 = 8 \qquad c_2^2 = \infty$$

i.e. there is no limitation for c_1^1 and c_2^2. In order that 6 workers be indeed attracted by industry 2 in country 1 they must be offered a wage equal to the one in industry 1, which is 1; for the employer to be able to pay this wage, he has to receive a price p_2^1 of 1.1; an import duty of 0.1 will be needed. On similar grounds a duty of 0.2 will be needed in country 2 on product 1 (in order that its price be 1.2).

The value of production at free-trade prices will now amount to:

$$\text{Country 1}: y_1^1 + y_2^1 = w_1^1 + \frac{w_2^1}{a_2^1} = 4 + \frac{6}{1.1} = 9\tfrac{5}{11}.$$

$$\text{Country 2}: y_1^2 + y_2^2 = \frac{w_1^2}{a_1^2} + \frac{w_2^2}{a_2^2} = \frac{8}{2.4} + \frac{12}{2} = 9\tfrac{1}{3}.$$

It will be easily understood that this is, for both countries, less than the value 10 found in problem 1, as long as production is partly going on in the industries with a comparative disadvantage.

PROBLEM 4: *closed situation; no capacity limits; free trade.* As set out before, the demand side will now have to be brought in. It evidently depends on the numerical values of the coefficients c and c_0 what the ratio of quantities demanded will be. It seems useful to consider the various

cases that may present themselves. Depending on the relative price level $\pi = \frac{p_2}{p_1}$ various production patterns may result. Each country may either produce both products or it may 'specialize' on one. For both products to be produced simultaneously, π has to be equal to the ratio $\frac{a^i_2}{a^i_1}$; only product 2 will be produced if π surpasses this ratio and only product 1 will be produced if π is below it. Since the ratio is 1.1 for country 1 and 0.83 for country 2, the following cases would seem possible, where an asterisk indicates production and a zero no production:

Case	*Value of* π	*Country 1*		*Country 2*	
		Prod. 1	*Prod. 2*	*Prod. 1*	*Prod. 2*
1	$\pi < 0.83$	*	o	*	o
2	$\pi = 0.83$	*	o	*	*
3	$0.83 < \pi < 1.1$	*	o	o	*
4	$\pi = 1.1$	*	*	o	*
5	$\pi > 1.1$	o	*	o	*

Upon closer consideration it will be clear, however, that cases 1 and 5 have to be excluded, since, in a closed situation, it is evidently impossible to satisfy the equilibrium conditions if one of the commodities is not produced at all.

Another conclusion following from our table is that with $\frac{a^1_2}{a^1_1} \neq \frac{a^2_2}{a^2_1}$ one country at least has to specialize. Since π is not given beforehand, but follows from the equilibrium conditions expressed in equations (1) – (12), we have to solve these equations before knowing which of the cases applies. The logical structure of our problem is that c and c_0 are

given and the x's, w's, y's and π unknowns, whereas the relation between π and the w's or y's is of the discontinuous character disclosed by the last table. Mathematically it will be simpler to assume π to be given and deduce the values for c and c_0.

Taking case 2, i.e. $w_2^1 = y_2^1 = 0$, we have, e.g.: $w_1^1 = W^1 = 10$; equations (1) – (6) become:

$$10 + 0 = (0.83\,c + c_0 + 0.83)\,x_2^1$$

$$\frac{20 - w_2^2}{2.4} + \frac{w_2^2}{2}\,0.83 = (0.83\,c + c_0 + 0.83)\,x_2^2$$

$$\frac{w_2^2}{2} = x_2^1 + x_2^2$$

or:

$$x_2^1 = \frac{10}{0.83\,(c + 1) + c_0} \qquad x_2^2 = \frac{20}{2\,(c + 1) + 2.4\,c_0}$$

$$w_2^2 = \frac{44}{c + 1 + 1.2\,c_0}$$

It follows that for $c + 1 + 1.2\,c_0 \gtreqless 2.2$, $w_2^2 \lesseqgtr 20$. If, therefore, $c + 1.2\,c_0 = 1.2$, the demand for good 2 would be so strong as to equal country 2's productive capacity and a situation would come into existence where the country would have to specialize on product 2. The formulae would no longer be valid, and hence are only so for

$$c + 1.2\,c_0 \geqq 1.2 \tag{13}$$

By equal methods we find that for case 3 to apply c and c_0 have to satisfy:

$$0.91\,(1 - c_0) < c < 1.2\,(1 - c_0) \tag{14}$$

It may be observed that the right-hand boundary condition here expressed co-incides with the one implied in (13).

For case 4: $1.1\,c + c_0 \leqq 1$ (15)

We are now able to invert our findings, according to the logical structure of the problem and may summarize the situation for problem 4 as follows:

$0.91(1-c_0) \geqq c$	$0.91(1-c_0) < c < 1.2(1-c_0)$	$c \geqq 1.2(1-c_0)$
$\pi = 1.1$	$1.1 > \pi > 0.83$	$\pi = 0.83$
$w_1^2 = y_1^2 = 0$	$w_1^2 = w_2^1 = y_1^2 = y_2^1 = 0$	$w_2^1 = y_2^1 = 0$
$w_2^1 = \dfrac{10 - 11c + 10c_0}{1 + c + 0.91c_0}$		$w_2^2 = \dfrac{44}{1 + c + 1.2c}$

For our further examples we choose $c_0 = 0$, $c = 1.5$, leading to:

$$\begin{bmatrix} y_1^1 & y_2^1 \\ y_1^2 & y_2^2 \end{bmatrix} = \begin{bmatrix} 10 & 0 \\ 1 & 8.8 \end{bmatrix}; \begin{bmatrix} x_1^1 & x_2^1 \\ x_1^2 & x_2^2 \end{bmatrix} = \begin{bmatrix} 6 & 4.8 \\ 5 & 4 \end{bmatrix}$$

At free-trade prices, i.e. at the prices prevailing with this c_0 and c, or $\pi = 0.83$, the value of production equals, for country 1: 10 and for country 2: 8.33. These values are equal to the values of expenditure, as is easily tested.

PROBLEM 5: *closed situation; no capacity limits; protection.* The logical structure of this problem is very similar to the one of problem 4; in addition to c_0 and c, the import duties τ_2^1 and τ_1^2 are also given. Since they are able to change the

price ratios inside the countries, there are also several possibilities as to the production pattern, depending on these data. In order not to make our argument too complicated we take the numerical values of c_0 and c chosen in problem 4, namely $c_0 = 0$, $c = 1.5$. The number of cases possible under protection is larger, since e.g. simultaneous production of both commodities in both countries is now possible. Since the object of protection is, in many cases, to maintain such a production pattern, we will even take this very case as our special numerical example. Before considering this we may first give a survey of all possible cases. This may be given the following tabular form:

	$\pi\tau_2^1 < \frac{a_2^1}{a_1^1}$	$\pi\tau_2^1 = \frac{a_2^1}{a_1^1}$	$\pi\tau_2^1 > \frac{a_2^1}{a_1^1}$
$\frac{\pi}{\tau_1^2} < \frac{a_2^2}{a_1^2}$	(1) *Impossible*	(2) $w_2^2 = 0$	(3) $w_1^1 = w_2^2 = 0$
$\frac{\pi}{\tau_1^2} = \frac{a_2^2}{a_1^2}$	(4) $w_2^1 = 0$	(5) *All* $w \neq 0$	(6) $w_1^1 = 0$
$\frac{\pi}{\tau_1^2} > \frac{a_2^2}{a_1^2}$	(7) $w_1^2 = w_1^2 = 0$	(8) $w_1^2 = 0$	(9) *Impossible*

It appears from the table that in cases of very high duties (case (3)), even anti-specialization would be possible; in cases of low tariffs a tendency towards normal specialization (case (7)) may still exist. Cases (1) and (9) are again impossible because both countries would specialize on the same product. The case we are going to consider is case (5), for which we have the condition ${}_2^1\tau\, \tau_1^2 = \frac{a_2^1\, a_1^2}{a_1^1\, a_2^2}$. Although it

may seem 'improbable' that such a condition would be fulfilled by chance, it should not be overlooked that often, as observed already, this case is the very situation aimed at.

Mathematically the case has the attractive feature that equations (5′) and (6′), which have now to be substituted for (5) and (6), reduce to equations without π, namely:

$$x_1^1 = 1.65\, x_2^1$$
$$x_1^2 = 1.25\, x_2^2$$

Furthermore it appears that there is still a double infinity of cases fulfilling our condition; for we are left with 7 independent equations between 9 variables (4 x's, 4 y's and π), these equations being equations (1) – (12), after elimination, with the aid of (7) – (10), the four w's and leaving out one of the first four (1) – (4). The double infinity of cases evidently corresponds with the freedom in both countries which employers have, under the circumstances specified, to produce either good 1 or good 2. By every choice they make all the other variables, including π, determined. In the case without protection such a freedom does not exist, even in the one country in which, in cases 2 and 4 of problem 4, simultaneous production in two industries occurs. For here any choice as to the production pattern determines not only π, the price ratio on the world market, but at the same time the price ratio inside each country. In our present problem, where we took $\pi\tau_2^1$ and $\frac{\pi}{\tau_1^2}$ as given, import duties are assumed to be so manipulated as to keep these internal price ratios at the values assumed.

Since we are only interested in an example, and not primarily in the complete solution of all cases implied, we have chosen deliberately among the double infinity of

possible solutions. This we have done, firstly, by choosing π rather than one of the y's, and, secondly by choosing one of the y's. Our choice has been $\pi = 1$ and $y_1^2 = 2$. With the latter choice we have taken care not to choose a value — which would have been possible — leading to a negative value for one of the other y's. The following values appear to satisfy all our equations (1) – (4), (5′), (6′), (7) – (12):

$$\begin{bmatrix} y_1^1 & y_2^1 \\ y_1^2 & y_2^2 \end{bmatrix} = \begin{bmatrix} 9.25 & 0.43 \\ 2.00 & 7.60 \end{bmatrix}; \quad \begin{bmatrix} x_1^1 & x_2^1 \\ x_1^2 & x_2^2 \end{bmatrix} = \begin{bmatrix} 6.20 & 3.76 \\ 5.32 & 4.28 \end{bmatrix}$$

With their help we may now calculate the values of production and expenditure both at current world-market prices and at free-trade prices (i.e. at the prices prevailing in problem 4). For comparison we repeat the values found in problem 4 and summarize all results in the table below:

Value of:	*At prices:*	*Free trade*		*Protection*	
		Countries: 1	2	1	2
Production	Current	10.00	8.33	9.96	9.60
Expenditure	Current	10.00	8.33	9.96	9.60
Production	Free-trade	10.00	8.33	9.88	8.31
Expenditure	Free-trade	10.00	8.33	9.32	8.~~37~~ 8

It appears, of course, that production value and expenditure are equal to each other, in each country, for current prices, which in the case of free trade are at the same time free-trade prices. They are not necessarily equal in the case of protection when valued at free-trade prices. The divergencies then reflect the influence exerted by a change in the terms of trade as compared with free trade. In our example, country 1 suffers a loss by this change, country 2 shows a

gain. For both countries the value of production at free-trade prices has decreased from free trade to protection and so, evidently, has total production value for both countries together, and consequently, total value of expenditure for both countries together. This applies not only to our example, but would have been found to be true for any example within our model. What our example proves, in addition, is the possibility that, under protection, one country may gain on the free-trade value of its expenditure; in fact, country 2 does. This is an illustration of two important principles, namely

(i) that the central thesis of free-trade theory cannot be proved, under the assumptions made, for any welfare concept; and
(ii) that tariffs may be used to manipulate, to the advantage of one country at least, the terms of trade in such a way as to increase the free-trade value of expenditure.

Finally it should be observed that the gain of country 2 could have been made available to that country in the case of free trade out of the larger gain in total production value for the two countries together under free trade, i.e. under free trade, total production might have been distributed between countries 1 and 2 so as to yield 8.87 to country 2 (as under protection) and leave to country 1 an amount of 9.49, which is still superior to what that country would have under protection (9.32). This is an application of the so-called 'compensation principle' of welfare economics.

APPENDIX 2

INTERNATIONAL TRADE UNDER VARIABLE RETURNS IN A VERY SIMPLE MODEL[1]

After having discussed some problems of international trade for a two-country two-commodity model under constant returns we will now deal with some problems under conditions of variable returns (i.e. decreasing as well as increasing returns). These problems will be under what conditions a country will have an advantage of international trade. Since only a comparison will be made between the situation without international trade and the situation with fully free international trade, no conclusions are drawn about any intermediary situations, e.g. situations with tariffs.

I. MEASURING THE 'ADVANTAGE' TO A COUNTRY OF INTERNATIONAL TRADE

Strictly speaking it is not possible to tell whether or not a given country has an 'advantage' from the existence of international trade, since it is, on closer examination, not possible to give a precise meaning to the notion of 'advantage' to a country. It is possible to speak of an advantage to a single person; a given change in his situation brings

[1] This appendix forms the largest part of Appendix 1 in the first edition of this book (under the title 'International Economic Co-operation'). I have omitted the discussion with Professor Frank D. Graham since I did not arrive at different conclusions, but only doubted whether his numerical example was consistent.

him either to a higher or to a lower level of satisfaction (ophelimity). Since this satisfaction cannot be measured and, a fortiori, a common measure for the satisfaction of the various subjects constituting a country does not exist, it is, however, impossible to add up the advantages or disadvantages for the single persons and hence also to give a precise meaning to the notion of advantage to a country. As, on the other hand, the discussion on the 'advantages of international trade' only has sense if some convention on this notion is accepted, we shall, in what follows, proceed as if a country as a whole also possesses a system of 'indifference curves', similar to those for a single person. We speak of 'curves' only and not of surface, etc., since we shall only discuss cases in which we have to do with two commodities 1 and 2, the consumed quantities of which, x_1' and x_2', determine the 'satisfaction' of the country $\Omega\ (x_1', x_2')$. Each indifference curve $\Omega\ (x_1', x_2') = C$ is constituted of (is the locus of) all commodity combinations x_1', x_2', that yield an equal satisfaction to a country. A combination x_1'', x_2'' yielding a higher satisfaction than a combination is situated on a 'higher indifference curve' etc. We make the usual assumption that these curves turn their convex side to the origin.

2. THE POSSIBILITY OF DECREASING AND INCREASING MARGINAL COST

For simplicity's sake we assume that there is only one productive agent, which we call labour. The total quantity of labour a is given and is fully employed. The quantities used in the production of commodities 1 and 2 are denoted by a_1 and a_2; hence

$$a_1 + a_2 = a \tag{1}$$

The quantity a_1 depends on the quantity x_1 of commodity 1 it is desired to produce; likewise a_2 depends on x_2:

$$a_1 = \varphi_1(x_1) \tag{2}$$

$$a_2 = \varphi_2(x_2) \tag{3}$$

The functions φ_1 and φ_2 are called *cost functions*. Marginal cost in each case is $\varphi_1'(x_1)$ and $\varphi_2'(x_2)$, respectively; these expressions always have positive values. They may, however, be increasing or decreasing functions of x_1 and x_2. The case of *increasing marginal cost* is the normal case. *Decreasing marginal cost* for a whole branch of industry will hardly occur. Even if for a single enterprise the 'law of decreasing marginal cost' is assumed to prevail, it need not be valid for the industry as a whole. The law will, as a rule, only exist for certain intervals of the quantity produced in a single enterprise. It is a well-known fact that no situation of competitive equilibrium is possible within such an interval. If the branch is constituted of more that one enterprise, an extension of production will usually mean the necessity of using less-productive units, i.e. increasing marginal cost. Only if the most economic size of the unit exceeds the size of the branch as a whole, will there be one enterprise; then, too, competitive equilibrium within the interval of decreasing marginal cost is not possible.

3. A GRAPHICAL REPRESENTATION OF THE EQUILIBRIUM OF PRODUCTION AND INTERNATIONAL TRADE

In fig. 1 let x_1 and x_1' be measured along the positive part of the horizontal axis and x_2 and x_2' along the positive

part of the vertical axis. The negative halves of these axes are used for plotting a_1 and a_2, respectively. In the fourth quadrant we draw the cost curve $a_1 = \varphi_1(x_1)$, assumed to be of the normal (convex) type. In the second quadrant the curve $a_2 = \varphi_2(x_2)$ is drawn in a similar way; to begin with, it is also assumed to be convex. In the third quadrant the line $a_1 + a_2 = a$ is indicated, being the locus of all possible applications of productive resources. From these data the '*production curve*' may be deduced, indicating all combinations x_1, x_2 that the country is able to produce. This curve has the equation:

$$\varphi_1(x_1) + \varphi_2(x_2) = a \tag{4}$$

Any point Q of this curve is obtained from the corresponding point Q' of the line (1) by the dotted lines in fig. 1. In the absence of international trade quantities produced x_1, and x_2 coincide with quantities consumed x_1' and x_2'. For its consumption the country therefore has to choose between the points on the production curve only. It will attain maximum satisfaction if it chooses point A where the production curve is tangent to one of the ophelimity curves, plotted against the x_1–x_2–axes: there is no point with a higher satisfaction to be found on the production curve. Under free competition this point will be attained automatically. The price relation between goods 1 and 2 will be indicated by the absolute value of the slope

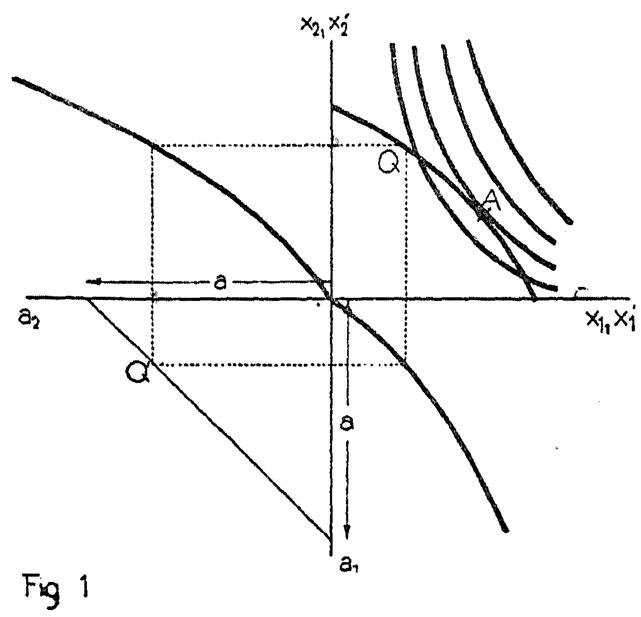

Fig 1

of the common tangent line to the two curves in A; i.e. that slope indicates the ratio between the quantity of x_2 exchanged for a unit of x_1; i.e. the price of x_1 in terms of x_2.

Now assume that an opportunity is opened to buy or sell in an international market at a given price p of x_1 in terms of x_2, represented graphically by the slope of the line $R\ S$ in fig. 2, where the first quadrant of fig. 1 has been reproduced. This means, first, that no longer x_1 has to coincide with x_1' and x_2 with x_2'.

A 'consumption point' $x_1'\ x_2'$ may now be reached, different from the 'production point' $x_1\ x_2$ and connected with the latter by the equation

$$x_1' = x_1 + \frac{1}{p}(x_2 - x_2'), \tag{5}$$

indicating that the consumption of good 1 equals its production x_1, plus the quantity bought in the international market, at a price p, for a quantity $x_2 - x_2'$ of good 2; the consumption of 2 now being less than x_2. Of course also x_2' may be $>x_2$, but then x_1' will be $<x_1$.

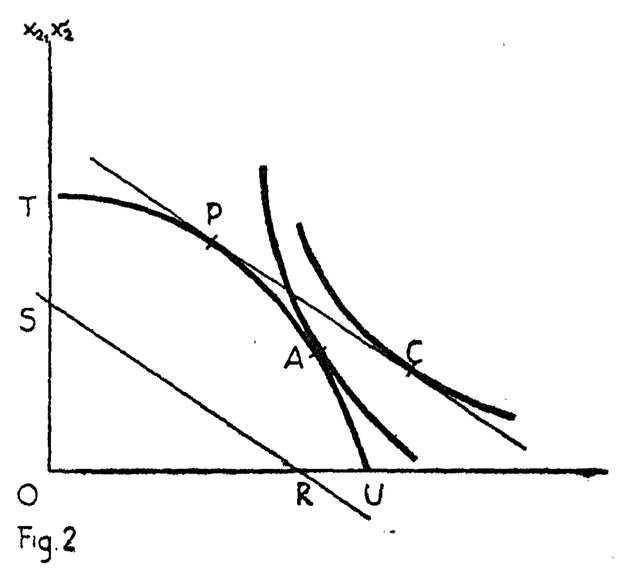

Fig. 2

Fig. 2 easily discloses what the new equilibrium situation will be. With the given price relation p producers will find it advantageous to use their productive resources in another way than before: in the case assumed in fig. 2, where p is lower than the price relation prevailing at point A, it will pay them to produce more of good 2 and less of good 1; equilibrium will be attained only if the marginal products

obtained are of equal value. This means that they will proceed to point P, where the tangent line to the production curve is parallel to the given line $R\,S$. Having produced the quantities x_1, x_2, corresponding with P, the country is now free to exchange part of its production at the terms expressed in equation (5), i.e., in graphical language, it is free to move along the 'price line' $P\,C$. This it will do until it has reached the point of maximum satisfaction, being point C, where $P\,C$ is tangent to an indifference curve. The new equilibrium is therefore represented by the two points P, C, the '*production*' and the '*consumption point*', respectively.

Under conditions later to be enumerated, *the satisfaction obtained in the new situation will always be greater than that obtained in the old one.* For $P\,C$, as a tangent to a convex curve, will, for any value of x_1, show a higher value of x_2 than the corresponding point of the production curve[1]. Since the equilibrium point in the absence of international trade, A, is necessarily a point of the production curve, the satisfaction in C always exceeds that in A, except in the particular case where A and C coincide, i.e. where the price relation p in the world market equals the price relation existing without international trade. Hence, under the conditions to be discussed, *the introduction of international trade always means an advantage* to a country; with the exception of such 'boundary cases' where the advantage is zero.

[1] From P to the left, $\frac{dx_2}{dx_1}$ for the production curve is, in absolute measure, always smaller than $\left|\frac{dx_2}{dx_1}\right|$ for the price line; from P to the right $\left|\frac{dx_2}{dx_1}\right|$ for the production curve is always larger than $\left|\frac{dx_2}{dx_1}\right|$ for the price line.

4. NON-TANGENT PRICE LINE

This important conclusion was reached on a number of conditions, the influence of which we will investigate in the following sections. The conditions are:

(i) the production curve is convex;
(ii) prices are equal to marginal costs;
(iii) there exists a point P on the production curve for which the slope of the tangent equals the price relation p in the world market.

We shall first remove the last condition. It is conceivable, in fact, that the price prevailing in the world market is lower or higher than the absolute value of the slope of any tangent to the production curve; in the case of a convex curve this only means that it is lower than that slope for T or higher than that for U, the two terminal points of the production curve. In those cases the production point will coincide with T or U respectively; the conclusions drawn remain valid, however, as is easily read from the diagram.

5. CONCAVE PRODUCTION CURVE

Next we remove the first condition mentioned in section 4. This condition is closely connected with the nature of the cost curves assumed. If both cost curves are of the increasing marginal cost type, the production curve is convex. It may be convex too, however, if one of the cost curves is of another type. This depends on the degree in which the curve deviates from the normal type. We shall go into this question in section 6 below. Now we start from the other end and we assume that both cost curves are decreasing marginal cost curves. Graphically, this means

that both these curves are themselves concave and it easily follows that also the production curve is concave (fig. 3). Now all points on the production curve, except the terminal points, are *unstable equilibria*. Extension of the production of one of the goods at the expense of the other always means an increase in total value of production: the expanding industry gets more productive and the declining industry less productive than at the initial point.

If the opportunity of international trading is opened at a price ratio corresponding to the slope of a line $T\ V$, point T will be the more advantageous point and similar to what we discussed above (section 3) a consumption point C will be chosen. Generally point T will, in the presence of trading opportunities, be the production point if the price of 1 in terms of 2 is lower than the figure corresponding with the line $T\ U$, whereas U will be the production point if that price is higher than that figure. As an example of this latter situation, the price line $U\ C'$ is drawn, with a consumption point C'.

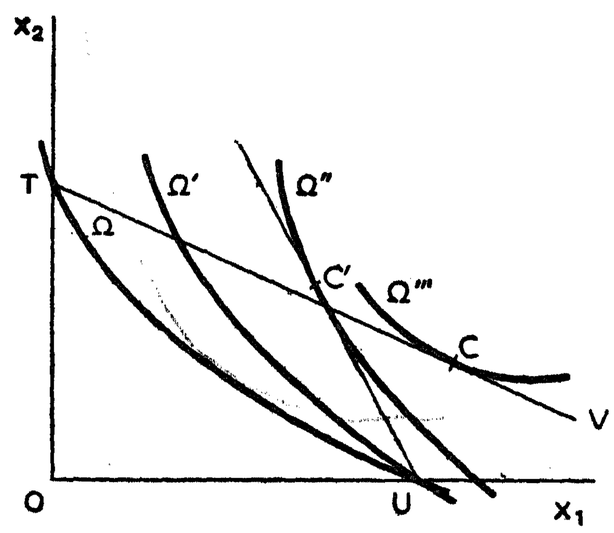

Fig 3

Again the conclusion can be drawn that the *introduction of international trade increases the satisfaction to be obtained for the country*, with the exception of possible (but not necessarily existing) boundary cases. One boundary case is the one where the price line through U coincides with the tangent to the ophelimity curve through that point (Ω').

6. A STRAIGHT LINE AS PRODUCTION CURVE; MIXED CASES

As a special case, often made use of in simple expositions of the theory of international trade (cf. appendix 1), we now consider the case where the cost curves are straight lines, the case of *constant marginal costs*. The production curve is now a straight line too, of which each point is a point of indifferent equilibrium. Apart from this difference with the preceding case the same conclusions are valid. More complications arise if one of the industries operates under increasing and the other under decreasing marginal costs. It then depends on the exact form of the two cost curves, whether the production curve is convex, concave or of a more complicated type. If one cost curve is 'highly' convex and the other only 'slightly' concave, the production curve will be convex, etc. There may be intervals where convexity and others where concavity prevails[1].

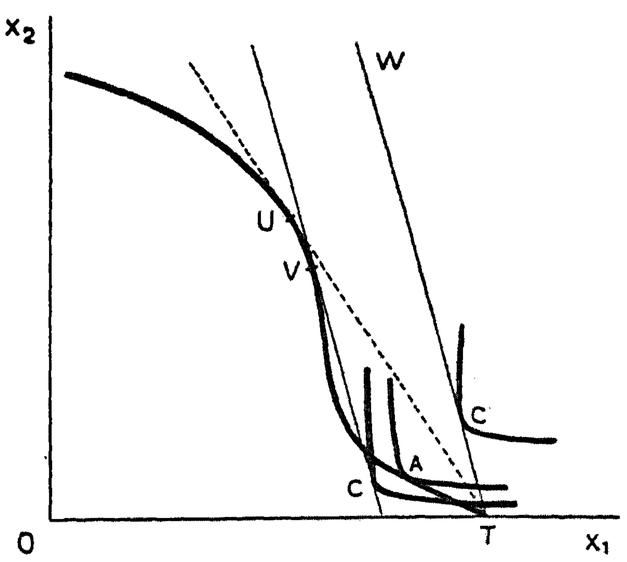

Fig 4

[1] A more exact study must be based on the analytical expression for these properties. An interval of a curve $y = f(x)$ is convex if $\frac{d^2y}{dx^2} < 0$ throughout that interval. In the notations used above we have:

$$\frac{d^2x_2}{dx_1^2} = \frac{\frac{d^2\varphi_2}{da_2^2} + \frac{d\varphi_1}{da_1^2} \cdot \frac{d\varphi_2}{da_2} \Big/ \frac{d\varphi_1}{da_1}}{\left(\frac{d\varphi_1}{da_1}\right)^2} = \frac{\varphi_2'' + \varphi_1'' \frac{\varphi_2'}{\varphi_1'}}{\varphi_1'^2} \qquad (6)$$

In order to suggest that also in these cases of a 'mixed' production curve our statement about the advantage of international trade holds as a rule, we consider an arbitrary case of this class (cf. fig. 4).

For prices lower than the slope of $T\ U$ a stable production equilibrium will be found between U and S. The consumption point will be either at the exterior of the production curve or, in boundary cases, on that curve. Therefore, the satisfaction will be at least as great as before the existence of international trade.

For prices higher than corresponds to the slope of $T\ U$, point T will be one possible production point. The corresponding consumption point will lie on $T\ U$ and hence — apart from boundary cases — show a higher satisfaction level than in the absence of international trade.

This is not, however, the whole story. For some prices in this interval there are two equilibrium points. With a price only slightly higher than that corresponding with $T\ U$ there is a possible equilibrium point in the neighbourhood of U, since the production curve is convex also for some interval below U. The existence of two equilibrium points is nothing new: it was discussed in some detail by Koopmans[1]. It implies that, if by trial and error over small

Since φ_2' and φ_1' are always positive, we see that $\frac{d^2x_2}{dx_1^2}$ is a weighted sum of φ_2'' and φ_1''; the weights varying along the curve. If φ_2'' and φ_1'' are of equal sign, $\frac{d^2x_2}{dx_1^2}$ has the same sign; if they are, however, of opposite sign, many possibilities exist.

[1] J. G. Koopmans, 'De mogelijkheid van meervoudig economisch evenwicht', De Economist *81* (1932), p. 679, 766 and 841 and 'Marginale kosten, marginale opbrengsten en optimale productie-omvang' in: Economische opstellen aangeboden aan Prof. Mr F. de Vries, Haarlem 1944, p. 149.

distances of the production curve, one of these equilibrium points is found and persists, the possibility exists that this point is not the absolute optimum but only a relative one. If we assume complete knowledge of all data with the economic subjects, they finally will choose the absolute optimum.

If that knowledge is not supposed to exist, they may stay at the lower, relative, maximum. In that latter case it may happen that the consumption point is one of lower satisfaction than the one prevailing before international trade was introduced. This case occurs if the course of the ophelimity curves happens to be such that the tangent points lies below W (cf. fig. 4). It then lies in the interior of the production curve.

Hence, *one condition has to be maintained in these mixed cases: the one of perfect market knowledge.*

7. CALCULATION OF PRICES ON THE BASIS OF AVERAGE INSTEAD OF MARGINAL COST

Finally we have to investigate the consequence of a removal of condition (ii) (section 4). This will appear to be a more serious threat to the validity of our statement. The necessity of assuming that prices are not equal to marginal costs of production only exists in the case of a decreasing marginal cost function. In industries where this law is valid, the equality of prices and marginal cost would entail a permanent loss to the producers. Hence it is probable that, in the long run, prices will be higher and in fact equal to average cost. In order to study the consequences of this hypothesis let us assume that industry 1 operates at decreasing marginal cost and that production is adjusted to

its price in such a way as to make average cost equal to price. Since average costs are higher than marginal cost, this means that the (absolute value of the) slope of the price line is now, in the equilibrium point, higher than the slope of the tangent.

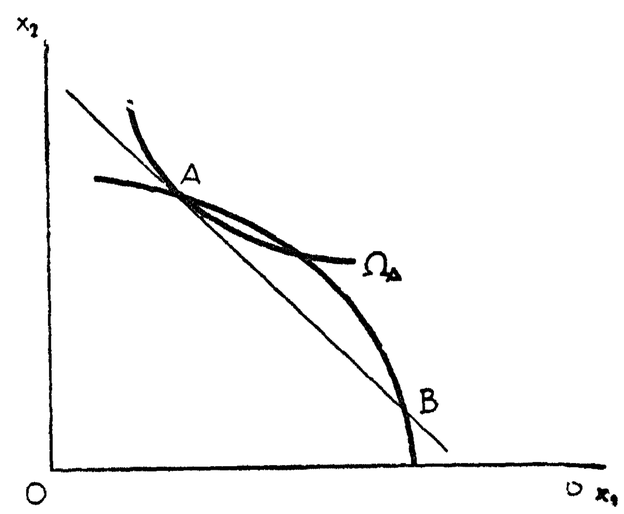

Fig 5

Let us further assume that the production curve is still convex. As the equilibrium point without international trade a point *A* will now be chosen where there is no longer identity of tangents to the production curve and the ophelimity curve. The price line *A B* now intersects the production curve, since its slope must be higher than that of the tangent. It is still a tangent to the ophelimity curve. This already means that the point of maximum satisfaction on the production line is not chosen: this way of calculating prices is disadvantageous to the country (cf. fig. 5).

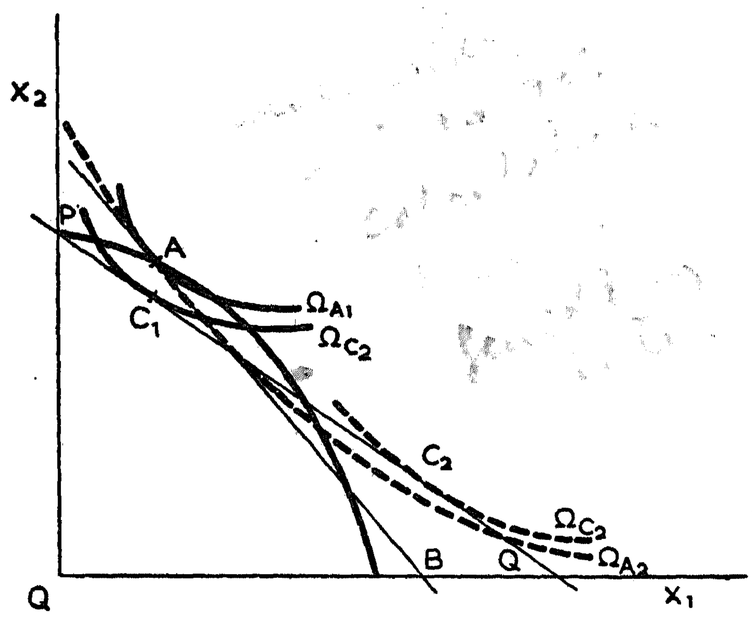

Fig 6

Now consider the case with international trade (fig. 6). Let *P Q* be the price line and *P* the corresponding production point. There are two possibilities now, indicated in

fig. 6 by the subscripts 1 and 2 and by full and dotted ophelimity curves respectively. In the first case, where the ophelimity curve through A, Ω_{A1}, does not intersect with $P\ Q$, the consumption point C_1 shows indeed a lower degree of satisfaction than A. Here *international trade is a disadvantage to the country*. In the second case, where the ophelimity curve through A, Ω_{A2}, does intersect with $P\ Q$, the satisfaction in C_2 is again higher than that in A and our former statement remains valid. Since both possibilities must be recognized it follows that the removal of condition (ii) (section 4) is vital to our statement. Hence our general conclusions may be formulated: *in the simple case considered (two commodities and one agent of production) international trade is an advantage (or as a boundary case no disadvantage) to every country involved, provided that:*

1. *there is perfect knowledge of market data and*
2. *prices are calculated on the basis of marginal cost.*

8. A DIAGRAM FOR TWO COUNTRIES

So far we only considered the position of one country finding itself vis-à-vis a world market with a *given price relation* p for good 1 in terms of good 2. We shall now try to answer the question *how that relation* itself is determined in the simplified case where there is only one other country in that 'world' market. It is by a simple extension of our graphical method that the answer may be given. In fig. 7, relating, as far as our first country, 'country A', is concerned, to the same situation as fig. 2, the co-ordinates x_1, x_2, x'_1 and x'_2 are, as before, plotted from the origin O. The corresponding co-ordinates for country B, denoted by y_1, y_2, y'_1 and y'_2, are plotted from O', but in the opposite direc-

tion. The point O' is simply chosen in such a way that its coordinates with respect to O are $x_1 + y_1$ and $x_2 + y_2$, respectively, or, which is the same, $x'_1 + y'_1$ and $x'_2 + y'_2$. This implies that A's and B's production points coincide (point P) and their consumption points as well (C). A's ophelimity curves are indicated by — . — . —, whereas B's are indicated by — — — — curves. The point A and B are the production (and consumption) points of countries A and B respectively, in the absence of international trade. The essence of the graphical representation is that $P\ C$ is at the same time tangent to both production curves in P and to an ophelimity curve of each country in C. For the case represented, the one of convex production curves and point P for neither country in a 'boundary situation', the advantage of international trade to both countries is clear:

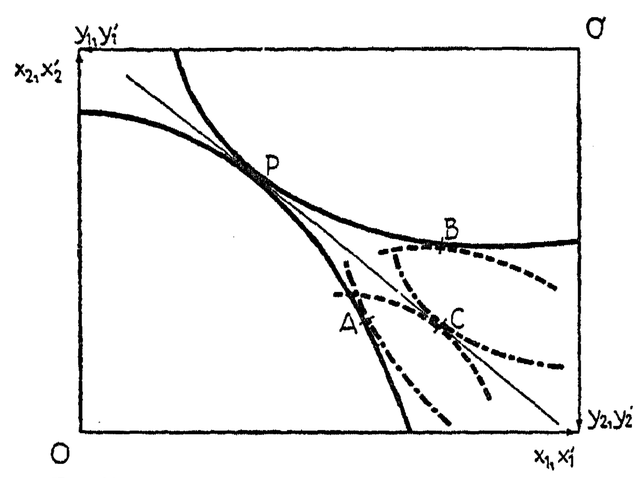

Fig 7

the satisfaction to A is greater in C than in A and the satisfaction to B is greater in C than in B. The diagram cannot be constructed unless the position of C is given and this depends on the unknowns of the problem, namely x_1, x_2, y_1 and y_2. Hence it might seem that the diagram is of no help in finding p. As a matter of fact, all these unknowns must be determined simultaneously; i.e. one must so long 'play round' with O' until a position is found where there exists — which is not generally the case — a common double tangent line to the system of ophelimity curves and the two production curves.

There are a great number of different cases as to the

shape of the production curves and the situation of the production and consumption points; quite a number of boundary cases being among them. It may be left to the reader to go into these questions.