CHAPTER 5

QUALITATIVE POLICY: CHANGING THE STRUCTURE WITHIN GIVEN FOUNDATIONS

5.1. Qualitative Policy

5.11 After having discussed the problems of quantitative policy we are now going to discuss those of qualitative policy, that is, problems in which the structure of the economy is changed. We restrict our definition of this type of policy, however, as the reader will remember (cf. § 1.3), to changes in the less fundamental elements of social organization—those not affecting spiritual aspects or essential relations between individuals. In other words, qualitative policy refers, in our terminology, to changing the details of social organization rather than the foundations, even if such changes seem more than mere details to those immediately concerned. Changes in social organization, even if they refer to less important aspects only, will, as a rule, be less frequent than quantitative changes in the values of existing instruments of economic policy. By and large therefore the policies now to be discussed have to be seen as long-term policies. There are a few exceptions, however; among them is the application of quantitative restrictions.

5.12 Changes in organization may be "induced" or "spontaneous". They will be induced if changes in quantitative data bring about circumstances that require another type of organization. Bad crops, war or other disasters may, for example, reduce the supply of certain primary commodities to such an extent that the free price mechanism will not work satisfactorily, and some type of rationing and price regulation will do better. Changing cost structures may also lead to situations in which the free pricing mechanism does not work and where monopoly will be the only solution. Better administrative techniques may develop, making it possible to carry out complicated
measures in the field of rationing, taxation or planning, which were not possible beforehand, but do function more satisfactorily. Changes in organization may also be the result of spontaneous new ideas. Certain types of modern retail distribution are examples: department stores, moving stores, supermarkets; manufacturing industry shows a continuous succession of such new ideas carried out. In the social field certain new taxes may be quoted, as well as newer wage systems or the ideas about business cycle policy or international economic integration.

5.13 The characteristic difference between quantitative and qualitative policy problems is of a methodological nature. In the case of quantitative policy the alternatives are of a quantitative character: between high and low taxes of a given type, or high and low exchange rates; and the search for the most attractive alternative can be made in a systematic way, best illustrated by our algebraic methods. In the case of qualitative policy even the enumeration of all alternatives would be hardly possible according to any system; and a choice still less therefore. Social organization may be changed in so many different ways that it would be virtually impossible to give a complete list. The best that can be done, therefore, is to collect the proposals so far made or tried out, to add other possibilities discovered by chance, and to investigate their consequences one by one. In principle

1 An attempt at a systematic solution of the problem of social organization might be undertaken along the following lines. Of course it has to be assumed that, in some way, a social welfare function is given; the very difficulty of the problem is that such a function will at least have to be very complicated and, according to many economists cannot even be determined on objective grounds. Apart from the social welfare function all indispensable technical relations between the economic and social variables have to be known. The most important of these relations are the production functions. A priori relations with regard to income distribution and spending should not be included: they represent the "unknowns" of this problem. The conditions for the welfare function to be a maximum subject to the indispensable technical relations will then have to be expressed. They may take the form of first derivatives of the welfare function with regard to the free variables of the system being required to be zero. They may also be expressed in other ways. If such conditions can, then, be interpreted as "rules of behaviour", the optimum organization consisting of these rules would lead to the desired maximum. There would be no need for any supplementary rules.
this investigation will mean that each time a comparison is made between two states of the economy: the original state and the situation created by the structural change considered. More precisely still, and by way of example: if the structural change consists of the intro-

A very simple example may be given. Let there be two groups of individuals, workers and organizers. Let all workers be identical and all organizers too. The workers are each supplying, a number \( a \) of hours of work, which may be distributed over \( a_1 \) hours of unskilled and \( a_2 \) hours of skilled work:

\[
a_1 + a_2 = a
\]  

(1)

The organizers are owners of a quantity of capital \( k \); there is one organizer for every \( n \) workers. The product obtained from the quantities \( na_1 \), \( na_2 \) and \( k \) of the three factors of production is written \( u \), and

\[
u = (na_1)^{a_1} (na_2)^{a_2} k^n
\]  

(2)

which is a production function of the Douglas type. The product is distributed between workers and organizer:

\[
u = nu_a + u_k
\]  

(3)

where \( u_a \) is a worker’s income in kind and \( u_k \) an organizer’s. This is another necessary relation. The social welfare function \( \Omega \) is supposed to be:

\[
\Omega = n\alpha_a (a_1, a_2, u_a) + \omega_k (k, u_k)
\]  

(4)

The problem to solve is to find a maximum of \( \Omega \) with (1), (2) and (3) as side conditions. We may combine (2) and (3) to:

\[
(na_1)^{a_1} (na_2)^{a_2} k^n = nu_a + u_k
\]

Using Lagrange multipliers \( \alpha \) and \( \beta \) the conditions for this maximum are:

\[
\frac{\partial \Omega}{\partial a_1} + \alpha \frac{\partial}{\partial a_1} (a_1 + a_2 - a) + \beta \frac{\partial}{\partial a_1} \{ nu_a + u_k - (na_1)^{a_1} (na_2)^{a_2} k^n \} = 0
\]

\[
\frac{\partial \Omega}{\partial u_a} + \alpha \frac{\partial}{\partial u_a} (a_1 + a_2 - a) + \beta \frac{\partial}{\partial u_a} \{ nu_a + u_k \} = 0
\]

\[
\frac{\partial \Omega}{\partial u_k} + \alpha \frac{\partial}{\partial u_k} (a_1 + a_2 - a) + \beta \frac{\partial}{\partial u_k} \{ nu_a + u_k \} = 0
\]

These conditions appear to be:
duction of a monopoly instead of free competition in a certain industry, what we have to do is to find out what level the economic variables will assume in each state of affairs, and then to appraise, with the aid of a welfare function, which of the two produces the highest level of welfare.

\[
\frac{n}{\partial a_1} + a - \beta \frac{dU}{\partial a_1} = 0 \tag{5}
\]

\[
\frac{n}{\partial a_2} + a - \beta \frac{dU}{\partial a_2} = 0 \tag{6}
\]

\[
\frac{n}{\partial u_a} + n\beta = 0 \tag{7}
\]

\[
\frac{d\omega}{\partial u_b} + \beta = 0 \tag{8}
\]

They may indeed be interpreted as rules of behaviour, namely, first of all from (5), (6) and (7):

\[
\frac{d\omega}{\partial a_1} + \frac{d\omega}{\partial u_a} \frac{dU}{\partial a_1} = \frac{d\omega}{\partial a_2} + \frac{d\omega}{\partial u_a} \frac{dU}{\partial a_2} \tag{9}
\]

Here, \( \frac{dU}{\partial a_1} \) and \( \frac{dU}{\partial a_2} \) represent the marginal productivities of the two types of labour. Under free competition between the organizers these two expressions would be the wage rates \( I_1 \) and \( I_2 \) the organizers would offer. Workers have to supply their two types of labour in such a ratio as if they were paid these rates; in the sphere of production they have to follow the course that would be followed under free competition. Equations (7) and (8), however, may be said to represent a rule of behaviour as to income distribution; this should be such that

\[
\frac{d\omega}{\partial u_a} = \frac{d\omega}{\partial u_b} \tag{10}
\]

meaning that marginal utilities of income would be equal between a worker and an organizer. This rule, to be sure, can only be executed if we have a method of comparing utilities, a subject discussed in § 1.6.

Needless to say that the author does not think this example to be a realistic picture of society; for this question the reader may be referred to § 6.4 in particular.
5.14 Such an investigation will only be possible if we know how the economy behaves in the new situation and if we know the welfare function—either the one of the actual policy-makers, if we have to do the appraisal for them, or our own welfare function if we are going to judge for ourselves. Both types of knowledge are defective, even more so than our knowledge concerning quantitative changes and the economy’s reactions to them; and this lack of knowledge sets a narrow limit to the precision of the statements that can be made. The reader will therefore find that this precision is gradually tapering off and that our statements will become less and less definite. The author hopes that this attempt at bringing some system into the main ideas so far put forward will at least induce the formulation of new and better ideas and knowledge.

5.15 The characteristics of qualitative policy, just discussed, make it somewhat premature to deal with the problems of such policy in the way chosen for the treatment of quantitative policy. This synthetic treatment, with the aims considered to be given and the means unknown, presupposes knowledge of the “model”, i.e. the set of reactions to be expected to each conceivable measure of policy; it also presupposes knowledge of the alternative policies. With this knowledge lacking in so many respects the author preferred to give short sketches only of the possible consequences of a number of policies proposed, enabling the reader to make his own combinations. The same is true, even to a larger extent, for the more fundamental changes in social organization called reforms; and the same method will therefore be followed in Chapter 6. The attempt at a synthesis at the end of that chapter cannot but have a provisional and personal character, therefore.

5.2. Quantitative Restrictions

5.21 As a first example of qualitative policy we shall deal with a type of measures that has been applied, usually only temporarily, with the purpose of restoring equilibrium between demand and supply in a direct way: by so-called quantitative restrictions (Q.R.). Well-known examples are the rationing of consumer goods, the allocation of raw materials to industrial enterprises, building permits, or foreign
exchange regulations. Their common characteristic is that a buyer is not permitted to buy the quantity of a certain, extremely scarce, good which he would be willing to buy at the income-price situation of the moment. We use the term extreme scarcity to indicate that the supply of a good is so small as to endanger the general socio-economic equilibrium. If under conditions of extreme scarcity prices and quantities bought would be permitted to move freely, the increase in prices and, as a consequence, in money incomes of productive groups, would become so pronounced that the financial structure as well as social equilibrium would be threatened. The real value of savings would go down considerably and the income derived from them (of special importance to old-aged and other handicapped persons) would be reduced very much in real terms. The incomes of workers, although probably adjusted by frequent wage increases, might tend to lag behind and the frequency of the wage changes would bring unrest.

5.22 All this is largely due, in the situation of extreme scarcity, to inability of the price mechanism to stimulate supply or to reduce demand. This is particularly true if the supply of a considerable number of essential commodities—i.e. commodities with a low demand elasticity—is lower than usual for some general political or technical reason, to be called a "disaster". Low elasticities of both supply and demand are, in fact, the conditions under which the "efficiency" of the price system as a regulator of equilibrium is low. This is why, under circumstances of extreme scarcity, attempts are being made to replace the price mechanism by a direct relation between supply and demand: certain upper limits are set to the quantities that people are permitted to buy. If such a system of Q.R. is to work in a complicated modern society it has to be fairly complicated. Certain reasonable discriminations have to be made. In the field of food rationing, for example, higher rations for heavy work, and special rations for certain types of illness or for babies and their mothers will have to be introduced. Some more flexibility may also be brought in by admitting certain personal choices, e.g. between coffee and tea, or between various qualities of meat, etc. Allocations of raw materials, of equipment and of foreign goods to enterprises will have to be much more complicated: there are numerous important reasons why
prise has to receive much more than the other. The best criterion in theory would be the contribution to national welfare that can be made by the enterprise; but upon trying to apply such criterion governments have experienced all the complications involved. In emergency situations there is, at least in the beginning, hardly any time to go into details and often therefore only a freezing of the existing proportions has been the solution chosen. The longer the period of Q.R. lasts, the more is the need for, and also the greater is the possibility of, investigating certain details; but the general experience is that this competition between need and possibility is lost by the possibilities: no system of control can do justice to all the details and a certain freedom for producers to reach their own decisions seems to be more efficient than complete centralization of all decisions (cf. §§ 5.7 and 6.6).

5.23 Complicated systems of Q.R. will also often result from a succession of attempts, not fully co-ordinated, to meet a succession of difficulties; and the chances of such series of difficulties occurring are large because of the general interdependence between economic phenomena. Regulations in some markets entail disruptions elsewhere and will have to be followed by regulations in other markets. If bread is rationed, everybody will buy more potatoes and soon the necessity for also rationing potatoes will come up. If all primary food is rationed, there will remain more buying power in the hands of consumers for buying non-essentials and the necessity of further rationing may arise. If the large items in the balance of payments are subject to Q.R., there will remain unused income in the hands of households or enterprises and balance of payments equilibrium may again be threatened.

Often external payments are regulated in bilateral arrangements with each of the partners. A set of bilateral arrangements has a tendency to create inconsistencies in many respects. The equalization of demand and supply of any two currencies on a bilateral basis leads to mutually inconsistent exchange rates and hence to tendencies for deviation from such rates. Here again, it may be better that Q.R. be applied by a group of countries as a whole to outside groups (European countries in EPU e.g. against the dollar area) and to admit deviations from bilateral equilibrium inside the group.
5.24 Rationing, even if a number of reasonable discriminations have been introduced, remains a rigid system tending to eliminate some of the stimulating forces in social organization. In fact, it introduces a greater equality in real income, by reducing the possibilities of enjoying a higher income. Or, to put it another way, it adds to money income an income in rationing points, the money value of which becomes higher and higher the more pronounced scarcity becomes. The sum total of money income and rationing points-income, or complete income, is distributed much more evenly than money incomes, and accordingly the stimulus to increase productivity is reduced. As long as dissatisfaction with the usual income distribution is not itself a force of some importance, the elimination of such a stimulus will, after some time, reduce welfare by reducing production.

5.25 The foregoing analysis may be summarized by stating that Q.R., in other than the short term, will have to be complicated in order not to disturb the functioning of a complex society too much, but yet can scarcely be complicated enough to meet all requirements of differentiation and stimulation, even though, as a consequence, it becomes more and more costly. Where possible it should be avoided; and this will often be the case if the proper financial measures are taken. This is particularly true for war and post-war economies where a surplus of money in circulation maintains a level of demand that cannot be met with by the lower supply characteristic for such periods (cf. § 3.53).

Professor M. Allais has worked out a complete set of such measures of taxation and subsidy, as could replace the whole of rationing and allocation measures taken in France after World War II. 1 The only general criticism one could make on his proposals is that at certain points they require such high taxes that the temptation to evasion must be very high.

The case for Q.R. remains strong, therefore, for temporary situations of extreme scarcity and, in particular, for markets where supply and demand show a low elasticity. This does not only apply to certain essential commodities, as already mentioned, under special circumstances, but it does also apply to the market for foreign exchange in

1 M. Allais, Abondance ou misère, Paris 1947.
certain types of countries in certain circumstances: for both supply of, and demand for, foreign currency may show a low elasticity. In other terms, it may happen that in the short run both exports and imports can slightly only be influenced by a reduction in exchange rate and that, therefore, equilibrium in the balance of payments, when disrupted, can be restored only by either a large reduction in exchange rates or by Q.R. If the prospect is that in the longer run equilibrium may be obtained at the prevailing rate there are good reasons for a temporary application of Q.R.

5.3. Built-in Stabilizers

5.31 A second example of structural changes meant to improve the efficiency of social organization will be taken from the proposals to change certain attitudes of business, and, above all, of public authorities, so that cyclic movements will be less intensive. This type of change may be illustrated by a change in government spending behaviour. For a long period governments would spend more when their tax revenues were higher and less when these receipts were lower. This implied that governments would usually spend relatively much in times when private incomes were also high and less when private incomes were less, thus reinforcing the general cycle. If, instead, governments followed a "compensatory" pattern, spending less when private spending was already high and spending more in times of slack business or depression, total demand would be more stable. Such a pattern of spending would, if properly carried out, be represented by a lower marginal propensity to spend for the economy as a whole. Its influence on the nature of economic fluctuations will be illustrated by problem 101.

5.31: PROBLEM 101. MODEL 10.

Aim: stabilization of cycle
Means: compensatory public expenditure as a built-in stabilizer
Comments: The effect of this structural change will be studied in the way announced in § 5.1: by comparing economic movements in the absence of such policy with the movements in its presence.

According to the equations of model 10 endogenous movements (i.e.
movements in the absence of changes in data) will be determined by the difference equation:

\[ X_{t+1} = (\xi_1 + (\xi_2 + \xi_3)\eta)X_t + \pi(\xi_4 + \xi_3)X_{t-1} = 0 \]  

(5321)

This equation is obtained from equations (1), (2) and (3) of model 10 by eliminating the variables \( Y \) and \( \rho \); the same equation would have been obtained for \( Y \) and for \( \rho \) if, each time, the two other variables had been eliminated.

In the absence of a compensatory cyclic policy the marginal propensity to spend \( \xi_1 \) will be close to 1. We will, in addition, assume that \( \eta = 2 \), meaning that the habit of including paper profits on inventories is general; \( \pi = 0.5 \), representing the usual reaction of prices on changes in activity and implying that price fluctuations and volume fluctuations are of about equal percentage amplitude; \( \xi_3 = -0.4 \), meaning that paper profits may be spent only for 60%.

With these coefficients equation (5321) becomes:

\[ X_{t+1} = 1.8X_t - 0.8X_{t-1} = X_t + 0.8(X_t - X_{t-1}) \]  

(5322)

This equation expresses the fact that, so long as no changes in data occur, an increase or decrease in \( X_t \) will continue, be it at a decreased rate: the increase of \( X_{t+1} \) over \( X_t \) will be \( 0.8 \times \) the increase of \( X_t \) over \( X_{t-1} \). The movement will therefore continue, as long as not a ceiling or a bottom is reached. If the original movement was a powerful one, the movement will be rapid, if it was weak, there will be a chance that, before a ceiling (or bottom) is reached, the movement has already become negligible. Since the increases form a geometric series (with a ratio 0.8), there will be a maximum (or minimum) level

\[ \frac{1}{1-0.8} \]  

(5323)

\[ X_t - X_{t-1} = 5X_t - 4X_{t-1}. \]

Such a maximum (minimum) will be an equilibrium as long as no fresh changes in data occur. Introducing now, as is usual in modern theory of the cycle, the existence of a ceiling, a bottom and numerous irregular changes in data which either increase or decrease \( X_t \) at irregular intervals and to a changing extent ("shocks"), the following picture of the economy’s movements is obtained. Any strong upward change will cause \( X_t \) to go up

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1 Such an equilibrium would not even exist and the cumulative character of the endogenous movements would be even more pronounced for slightly different values of \( \pi \) and \( \xi_2 \), namely \( \pi = 0.6 \) and \( \xi_2 = -0.3 \); which would yield an equation \( X_{t+1} = X_t + (X_t - X_{t-1}) \).
in a cumulative way, and any strong downward change will cause it to go
down cumulatively. Cumulative upward or downward movements will be
interrupted if (i) the ceiling or the bottom is reached, (ii) if fresh shocks
occur of sufficient strength to invert the movement or (iii) if an equilibrium
position will have been reached. Neither of the states in which the economy
can find itself will last very long, because of the shocks. This picture seems
to be a fair representation of "the cycle".

In the presence now of a compensatory government policy the change
in structure will be a reduction of \( \xi \), say to 0.5. The endogenous movements
will now be determined by:

\[
X_{t+1} = 0.8 X_t - 0.3 X_{t-1}
\]  

(5323)

The nature of these movements is different from what they were in the
previous case. The characteristic equation being

\[
x^2 - 0.8 x + 0.3 = 0
\]

(5324)

it follows that \( x = 0.4 + 0.37 i \), meaning that \( X \) will show cyclic movements
of a period of a little more than 8 time units, i.e. 2 years, and with a high
damping ratio: after half a year (2 time units) the amplitude will have been
reduced to 30%, after a year to 9%. This means that cumulative movements
will hardly occur any more; after one year any movement will reverse itself.
The cycle as we know it, and as it is possible with the previous choice of
coefficients in equation (5331), cannot occur anymore.

5.33 It appears that the change in behaviour just indicated will
succeed in changing the character of economic fluctuations. The change
in behaviour may be facilitated by creating a legal obligation to make
certain types of expenditure in times of depression; a good example
being unemployment benefits. It is these kinds of regulations, in
particular, that are called built-in stabilizers. We will discuss another
example of such structural changes in section 6.5, where we discuss
the raw material standard. In a general way it may be stated that we
can influence the type of movement an economy is able to perform
by influencing the structural constants of that economy. And here we
even have a possible method of dealing systematically with part, at
least, of the problem of structural change: we may formulate certain
criteria regarding the type of movement we prefer (and hence set as
an aim of policy) and then try to find out which values of the coefficients
will satisfy these criteria in the best way. It may, for example, be
asked, for what values of the structural coefficients is the average damping degree of all components of the fluctuations a maximum. And this question may then be posed concerning those far more complicated models of the cycle which have been constructed as a closer approximation to reality than is our model 09. We will not go into details, since we believe that the two most important aspects of this type of structural change are the two examples given in this book; but it should be clear to the reader that, in this field of investigation, much could still be added to our knowledge.

5.34 It will also be clear that the subject dealt with is the same as the one treated in §§ 3.5 and 4.1 under the heading “alternative methods of regulating employment”, the difference in treatment being that, in those sections, ad hoc changes in government expenditure were discussed as being applied year by year, taking account, in each year, of both the systematic cyclic situation and the incidental “shocks”, whereas in the present section the relation of government expenditure to the systematic factors over the succession of years is the focus. If public expenditure is determined according to the new structural coefficient considered, there would still remain erratic shocks in general activity, but their influence would be small and quickly dampening down. If public expenditure is considered anew each year it is also possible to compensate for some of these erratic shocks, although not all of them; and not those which occur after the decisions have been taken.

5.4. Changes in Pricing and Taxation Schemes

5.41 Each economy is regulated by a large number of schemes used in the pricing of products as well as of factors of production, and in taxation. Such schemes may sometimes be changed and these changes will influence the economic situation. They are examples, therefore, of qualitative policy. There are numerous possibilities, many of them different as to their effects. Sometimes, these effects may be estimated fairly accurately on the basis on known patterns of reaction; sometimes, if new patterns of reaction are possible, it will be difficult to estimate them. A general treatment does not seem promising, so that a number of examples will be considered one by one.
5.42 Starting with pricing schemes for products, the well-known example of non-flat rates may first be discussed. Instead of being charged an amount proportionate to the quantity bought the consumer of e.g. electricity pays a fixed amount (which may depend on his income) and a much smaller proportionate amount. This means that the marginal amount paid per unit is much lower; when comparing the advantages and the costs of buying one more unit the consumer, once he has paid his fixed amount, finds the costs reduced considerably and buys units he would not otherwise have bought. The reaction of the consumer to the introduction of this pricing scheme may be said to be the combination of two reactions, namely (a) a reduction of his income by the “fixed amount” and (b) a price reduction. Both reactions are known from statistical studies and can be predicted relatively accurately. The probable result is a considerable increase in quantities sold. Looked at from the side of the producer the scheme is also attractive: the fixed amounts are contributions to his fixed costs and as long as he is able to produce additional units at relatively low extra costs per unit he will make a profit even if his additional receipts are less than the average price so far obtained. The social advantages may perhaps best be illustrated by the fact that, in certain circumstances, the production of a commodity if sold at “proportionate charge” may not even be profitable at all and therefore not be undertaken, whereas at a non-flat rate it would be profitable and so be organized. In a general way the argument in favour of non-flat rates may be given the following form. Non-flat rates represent an organization of the distribution which adds an instrument to those already existing; in addition to the amount proportional to the quantity taken there is the fixed amount to be paid. The introduction of a new instrument, including as a special case the old situation (i.e. where the fixed amount equals zero), always opens the way to higher welfare. This, as a limiting case, is not true (i.e. the zero value for the new instrument is to be preferred), if that instrument is not relevant to welfare or to production, since the costs of production do not contain an important fixed element. Put in a different way: the organization of distribution should add as few autonomous elements as possible to the phenomena relevant to welfare and production relations. The more the sacrifice asked from the consumer corresponds to the sacrifice made by the
producer, the less chance is there that the optimum of welfare will be barred by artificial rules of conduct.

5.43 As a next example a pricing scheme for a factor of production may be discussed; we choose the so-called sliding scale for wage rates. As with so many structural changes the introduction of sliding scales for wages can also be explained by the occurrence of circumstances in which free wage rates were an inefficient institution for either employers or employees. An old example is the sliding scale payment to miners that was correlated with coal prices; employers suffered from the heavy fluctuations in coal prices as compared with relatively sticky wages. Newer examples, in accordance with changed conditions of power, are sliding scales where wages are linked up with cost of living indices, or farmers’ incomes with prices of farm appliances and cost of living. In quite recent proposals old-age pensions are also linked to cost of living indices. We will discuss the far-reaching device of a complete proportionality between wage rates and cost of living indices. Clearly such a sliding scale reduces the adaptability of an economy, in particular if it is an open economy. In situations where the demand for the economy’s products decreases, and hence unemployment threatens, it will not be wise to maintain wage rates; and it will not be wise, either, in situations where that demand is increasing. In a situation where the country’s product is in unchanged demand but certain imported foods or stimulants are increasing in price, it is again unwise to let wages go up, and, when import prices are going down, to let wages fall. These, then, are certain disadvantages of an a-priori link between the wage rate and the cost of living. There are certain advantages also; workers will be protected against easy inflationary policies and inflationary policies will be less attractive to the monetary and central authorities. The choice will have to depend on how high up these various aspects rank in the general welfare function. In a country where financial policies are not sufficiently sound a sliding scale may be just the type of warning certain other organized groups or the authorities need; our preference would be for sound financial policies without a sliding scale.

5.44 Our third example will be chosen from the field of taxation. In some sense, every detail of taxation policy provides an example
of this kind; we do not intend, however, to give a full discussion of taxation policy in this section. Some important aspects have already been or will be discussed elsewhere (§§ 3.5, 3.6, 3.7, 4.1, 4.2, 6.4, 6.5). As our special topic in this section we take the choice between indirect and direct taxes. In order to make our discussion as precise as possible we assume a closed country and a given amount of total tax receipts; the problem to be discussed being first, whether the changing of a certain share of indirect taxes into direct taxes should be recommended.

Clearly there will be no difference at all if the indirect as well as the direct tax considered are both proportional and general taxes paid on all goods (including investment goods) or all incomes. In the case of the higher indirect taxes, prices will be higher, but disposable income will be equally higher for everybody. As soon as these conditions are not fulfilled there will be differences in effect, resulting in advantages to some and disadvantages to others; and also resulting in differences as to long-term effects to all. The most important practical deviation from the assumptions made is that direct taxes are progressive: low incomes are exempted and high incomes more hardly hit. The shift towards direct taxes will therefore equalize disposable incomes to some extent. At the same time it will somewhat reduce the attractiveness of higher incomes, and, in the first instance, therefore reduce the stimulus to training and increasing of productivity. It will also tend to lower the savings ratio of the economy and thereby possibly its rate of development. Some of these effects may, however, be counteracted by other, further effects: income scales may be readjusted to some extent and savings may be made by government. It is not probable, however, that these secondary effects will completely compensate the primary ones. Enterprises may increase incomes of high officials in order to "pay part of their income tax for them", but they have to charge their accounts with the higher income and there is a limit, although not a very sharp one, to what these accounts can bear. If government is to increase its savings, it will, on our hypothesis

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1 Such effects may be avoided, to a certain extent, by direct taxes based on assets or on expenditures: cf. N. Kaldor, An Expenditure Tax, Allen and Unwin, London 1955.

2 Risk bearing becomes less attractive since losses are not treated symmetrically with profits.
of unchanged total tax receipts, have to reduce some other items and this will meet with resistance. In one respect higher taxes may, however, stimulate investment. Increased investment by an existing company will only be paid partly by the company if profit taxes are high; and hence may be stimulated by tax increases.¹

It is not easy to test our reasoning with the aid of factual developments; many other factors have changed at the same time. No clear evidence exists, however, of a pronounced slowing down of general development during the era of high direct taxation. Our conclusion is that the main consequences of a shift from indirect to direct taxes are an equalizing tendency in disposable income and a possible slowing down of development. If inequality is very pronounced and becomes a threat to social stability, the former aspect may be the most important one; if it is less pronounced the latter may be the more relevant.

In the case of an open economy the consequences will be more complicated. Reduction of indirect taxes may then adversely influence the balance of payments situation. This complication will not be too important, however, if a group of open economies more or less simultaneously undertakes the same shift.

The shift presupposes one important technical fact, namely that the economy concerned is sufficiently well equipped with tax administrators and that the population is sufficiently co-operative in these matters. Both questions are matters of education.

5.45 Our final example in this § refers to import duties, an example covering, to some extent, all three preceding: it influences the pricing of products as well as the factor raw materials and may also be considered a tax.

One of the original purposes of import duties was to protect home industries against the increasing competition caused by continuous decreases in transportation costs. The free-trade doctrine taught policy-makers to consider the interest of a nation as a whole and, under certain assumptions, proved that import duties were against the national interest. The proof had to be based on three assumptions, namely:

¹ This is also mainly true because of the asymmetry argument. Cf., however, B. Hansen, op. cit. p. 198 ff.
i) that all factors of production are fully used

ii) that their productivities in various industries are not influenced by import duties, and

iii) that the prices at which the country buys its import goods are not influenced by such duties.

On these assumptions it can be proved that free admittance of all imports leads to a maximum product if

iv) that product is valued at free-trade world-market prices.

Accordingly the question may be put whether not import duties are still an instrument to increase an economy’s welfare if by their application:

(a) unemployment can be reduced;

(b) industries can be developed of which the productivity will increase as a consequence of their development (so-called “infant industries”) or

(c) imports can be obtained at prices that are more advantageous to the country.

The doctrine of “optimum tariffs” has been developed in various forms in order to show how welfare can be increased along each of these lines; more particularly along line (c). The argument behind (b) is known as the “infant-industry argument”.

Optimum tariffs advocated on the basis of argument (c) take the national interest as their criterion and not the international interest. As long as free-trade world market prices are accepted as a “true” valuation of commodities, total world production will be highest if no duties are imposed. By measures of redistribution of income—international redistribution—it would then be possible to let any one country have the advantages it could have had from optimum tariffs and still leave the others with more than they could have had if the first country had imposed its optimum tariff. It is not sufficient, to be sure, to make this statement: the method of redistribution should be indicated and carried out before one can expect that country to abandon its intentions as to the introduction of its optimum tariff. As long as we accept the world market free-trade prices as the true valuation of commodities, therefore, there is a case to be made for free trade if certain measures of redistribution of incomes between countries are taken, namely those which we deem equitable. Whether it will be
possible to reach agreement on what is equitable is still another matter; but each expert should, for himself, have that one optimum in mind according to his own preference and should be aware of its being better, according to his own preferences, then any other solution implying duties. A solution with duties remains a second best solution.

This is no longer necessarily so when we do not accept world market free-trade prices as the best valuation of goods. Then it might be that a production pattern under protection would lead to a higher value of world market production than one under free trade. Still, it may be questioned then whether that same pattern cannot also be obtained, and a better one even, with the help of other means, primarily, again, certain subsidies. The present author believes this to be the case, mainly because it is difficult to understand why the national frontiers should have anything to do with the issues at stake. It should be recognized, however, that in a number of practical cases import duties are a relatively cheap instrument and for that reason may be preferred to subsidies.

5.5. Monopolies

5.51 In recent political discussion there has been a tendency to either oppose or support the existence of monopoly without making a distinction between the cases where monopoly may be wholesome and those where it does harm. A closer consideration of the consequences of monopolies under various circumstances shows that in fact these consequences may vary. The well-known statements about a monopoly in one single industry do not also apply in toto, if monopolies are more widespread. To the extent that certain changes in prices and quantities handled are brought about by the introduction of a monopoly it should also be asked whether the initial situation did, or did not, satisfy certain welfare standards. An increase in prices may be correct if prices were “too” low. This is why an appraisal of the creation of monopolies or their dissolution need not invariably be the same in all cases, but has to depend on a closer analysis.\(^1\) According to the method

\(^1\) This has been long understood in the Netherlands, where since 1937 one and the same law empowers the government to declare illegal or to impose on outsiders certain monopolistic regulations.
followed earlier in this book we will deal with the problems by discussing a few clear-cut cases and by trying to draw some more general conclusions against the background of these cases.

5.53 PROBLEMS 071-074. MODEL 07.
Given: change from a competitive system to a system of monopolies
Problem: to find consequences for welfare
Comments: The problem has to be specified further; and several alternatives will be considered. One general specification we will make is that the total volume of production will be maintained; this will be so, if full employment is maintained. We make this assumption. We will now first consider:

PROBLEM 071. FREE COMPETITION IN ALL INDUSTRIES
In this case the model is simplified in that all goods are now supplied at their marginal cost, which is 1; hence $p^h = \hat{p} = 1$; we choose the money unit such as to make also the total value of production (national income) = 1 and it follows, since $y = 1$, that:

$$x^h = \xi^h$$  \hspace{1cm} (5501)

5.53 PROBLEM 072. A MONOPOLY FOR ONE FINAL PRODUCT H
(comprising all vertical stages of that final product; i.e. production is assumed to be vertically integrated). Assuming that the number of products is large, we may conclude that neither the price level $p^h$ of the non-monopolized products nor the level of total production $y$ will be affected; for all non-monopolized products we still have $p^h = 1$ ($h = 1 \ldots H - 1$). For the monopolized product we have:

$$\frac{dZ^H}{\hat{p}^H} = 0, \text{ whereas } \hat{p} = \frac{\Sigma z^h p^h}{\Sigma \xi^h} = \frac{\Sigma z^h}{\Sigma \xi^h} + \frac{\xi^H (\hat{p}^H - 1)}{\Sigma \xi^h} =$$

$$= 1 + \frac{\xi^H (\hat{p}^H - 1)}{\Sigma \xi^h} \hspace{1cm} (5502)$$

It will further be assumed, although the influence of this assumption is only very small, that the monopolist does not consider $\hat{p}$ in the demand function to depend on $\hat{p}^H$.

$$\frac{dZ^H}{\hat{p}^H} = x^H - (p^H - 1) \xi^H = \xi^H - \xi^H (\hat{p}^H - \hat{p}) = \xi^H \hat{p}^H + \xi^H$$
from which it follows that

$$\rho^H = \frac{\xi^H + \xi^H + \rho \xi^H}{2 \xi^H} = \frac{\xi^H}{2 \xi^H} + \frac{\rho}{2}$$  \hspace{1cm} (5503)$$

and hence

$$\chi^H = \frac{1}{2} \xi^H - \frac{1}{2} \xi^H + \frac{1}{2} \rho \xi^H$$  \hspace{1cm} (5504)$$

From these three equations we see that

$$\rho^H = 1 + \frac{\xi^H}{2 (\Sigma + \Sigma') \xi^H}$$  \hspace{1cm} (5505)$$

$$\chi^H = \frac{\Sigma}{\Sigma + \Sigma'}$$  \hspace{1cm} (5506)$$

where \( \Sigma = \Sigma^H \xi^h \) and \( \Sigma' \) means a summation excluding \( H \).

From these equations we see that the price of the monopolized product will always be higher than under competition, whereas the quantity handled will be almost halved; normally \( \Sigma \) and \( \Sigma' \) will not differ very much. This is the well-known restrictive tendency of monopoly.

**5.54 PROBLEM 073. VERTICALLY INTEGRATED MONOPOLIES FOR ALL FINAL PRODUCTS.**

This is the problem where model 07 fully applies. Assuming again that the monopolists disregard the influence of their own price on the general price level and hence the indirect influence on the demand for their product, we have:

$$\frac{dZ^h}{d\rho^h} = x^h - (\rho^h - 1) \xi^h = 0$$  \hspace{1cm} (5507)$$

from which we deduce:

$$\rho^h = \frac{\xi^h}{2 \xi^h} + \frac{\rho + 1}{2}$$  \hspace{1cm} (5508)$$

$$x^h = \frac{1}{2} \xi^h + \frac{1}{2} \xi^h \rho - \frac{1}{2} \xi^h$$  \hspace{1cm} (5509)$$

From the definition of \( \rho \) [model 07 equation (5) ] we also derive:

$$\rho = 1 + \frac{\Sigma \rho^h}{\Sigma \xi^h}$$  \hspace{1cm} (5510)$$
and consequently:

\[ \hat{p}^h = 1 + \frac{\xi_v^h}{2\xi_1^h} + \frac{\sum \xi_v^h}{2\sum \xi_1^h} > 1 \]  

(5511)

and

\[ x^h = \frac{1}{2} \xi_v^h + \frac{\xi_1^h}{2} \frac{\sum \xi_v^h}{\sum \xi_1^h} \]  

(5512)

We see that now all prices are higher than under competition; and that the quantities, as they should, add up to 1; some of them will be larger, others smaller than with competition. This evidently depends on the value of \( \xi_1^h \); if

\[ \frac{\xi_1^h}{\xi_v^h} > \frac{\sum \xi_1^h}{\sum \xi_v^h} = \frac{\xi_1}{\xi_v} \]  

(5513)

the corresponding \( x^h \) will be larger than before; (5513) is valid for products with a high elasticity of demand. The situation has to be interpreted such that the factors of production (labour, land and capital) are now exploited by the entrepreneurs: nominal factor incomes do not rise, since we simply took costs of production to have remained the same, but the prices of products have risen and so real factor incomes have fallen. There is no reason for total demand to fall since the introduction of monopolies has changed the distribution of income, but has not necessarily changed total incomes. This could happen if there were a systematically lower propensity to spend with the incomes of the entrepreneurs.

5.55 **PROBLEM 074. CUMULATIVE MONOPOLIES FOR ONE OR ALL FINAL PRODUCTS.**

We finally assume that each stage in the production of each final product is itself monopolized; i.e. that each industry—not vertically integrated now—is conducted by a monopolistic group aiming at maximum profit. More specifically, it is assumed that each industry considers the price at which it buys as given but manipulates its selling price so as to obtain maximum profit. We will not describe this case in all detail but only indicate the method of analysis. Numbering the stages of production leading to one final product from the raw material state as 1 up till the final stage \( I \), and indicating the number in a general way by \( i \), we have the profits of stage \( i \) of product \( h \):

\[ Z^{hi} = (\hat{p}^h - c^{hi} - \hat{p}^h, i-1) x^h \]

Assuming \( c^{hi} \) as given, \( \hat{p}^h, i-1 \) as given to the industry \( hi \) and \( x^h \) as a
function of $p^h_i$ (and other factors such as $y$ and the general price level $\hat{p}$, also considered as given by the industry) the process of making $Z^h_i$ a
maximum leads to a formula $\frac{dZ^h_i}{dp^h_i} = 0$ by which $p^h_i$ can be expressed as
a function of all the “data” to this industry; and consequently also $x^h_i$.
This then represents the demand function for industry $h, i - 1$; i.e. we have a “recurrent formula” to find the demand function for $h, i - 1$, as soon as the demand function for $h, i$ is known. Since we know the demand function for the final product [see model 07, equation (5)], we are able to deduce all the “lower” demand functions. It will appear \(^1\) that the coefficient before income and price is halved each time we pass on to a lower stage.
This has two consequences. In the case where only one final product is “cumulatively monopolized”, the tendency of integrated monopoly will be reinforced and the volume handled of this product will, instead of being halved, be reduced to about $\frac{1}{2^t}$, i.e. e.g. for a production in three stages, reduced to about $\frac{1}{8}$. In the case of general cumulative monopolization this
will not happen in a general way, for the reasons discussed under problem
073; but the tendencies found with problem 073, vertically integrated monopolies, will be reinforced also here: i.e. the deviations from the state of competition will be greater and especially for those products for which $\xi_i^h$ is relatively large or small in comparison to $\xi_i^A$.

5.56 Trying now to summarize our findings and somewhat to generalize them, we have found that a monopoly in one single industry, itself vertically integrated, tends to raise the price of the product and to restrict the quantity produced. Of these two consequences the one of the higher price remains true, if not only one, but all, industries are monopolized; but the one about the quantities no longer necessarily applies. It is possible to maintain total
real income: our assumption that it be maintained appears not to be inconsistent with the other equilibrium conditions. To be sure, certain conditions as to the spending of income or with regard to monetary policy will have to be fulfilled during the period of transition from a competitive to a monopolistic system in order that total real demand actually be maintained. But this maintenance is not contradictory to the essence of
monopoly: its essence being a certain distribution of income rather than a certain level of (total) income. Monopolies tend to redistribute income in favour of the monopolized factors; in our example these factors are those of entrepreneurship or “organization”. The other factors: labour, capital

\(^1\) Cf. J. Tinbergen, Beperkte Concurrentie, Leiden 1946, p. 82 ff. (Dutch).
and land will pay higher prices for finished products and thus be exploited. It is conceivable that the owners of these factors would in their turn try to pursue a monopolistic policy and thus exert a counterbalancing force, or it is conceivable that organizers' monopolies are created in response to already existing monopolies or semi-monopolies of certain factors.

5.57 The interesting further conclusion that may be drawn from our "problems" refers to what have been called cumulative monopolies: i.e. a succession of separate monopolies in each of a series of consecutive stages of production, where the demand side of each consecutive market is assumed to be competitive. If such cumulative monopolies are created the intensity of the phenomena discussed will increase. Prices will be raised more than with a vertically integrated monopoly for each product. The meaning of this conclusion is that "vertical" co-operation is completely different from "horizontal" co-operation between producers. Whereas the latter introduces the typical features of monopoly, the former represents a counteracting tendency. To the extent that monopoly is harmful to welfare, vertical integration is wholesome. This conclusion is of great importance for the appraisal of attempts at "organizing" society in "corporations" or "industry-ships".

Whether the effects on welfare to be expected from the various types of monopolistic co-operation are favourable or unfavourable depends, as we already observed, on the initial situation. To the extent that, in that situation, certain prices were too low, an increase with the aid of monopolistic or semi-monopolistic practices will raise welfare. Whether the prices considered were too low or not depends on the criteria applied by the policy-maker. An important criterion is to be found in the question whether these prices yield a profit rate equal to profits in other industries; and whether profits generally are sufficient to attract capital and people needed for the desired rate of expansion of production. Other criteria may be derived from what is considered the most desirable distribution of incomes between the large classes of the population. It follows from our analysis that prices may be raised either by one monopoly for all stages of production of the product considered or by a vertical succession of monopolies for each stage; in the latter case the rise will be more considerable than in the former. For products whose prices are not too low, monopolis-
zation is not to be recommended, and, if it cannot be avoided, vertical integration is to be preferred to cumulative monopolization. For similar reasons organization of industries in corporations or industry-ships should be entrusted to one vertical corporation rather than to a number of corporations for the successive stages.

If, however, the initial situation is one of full employment of all factors, there will be little scope for a monopolistic organization of any of the markets.

5.6. Decentralization or Centralization in Administration

5.61 The next example of qualitative policy consists of acts of centralization or decentralization in administration. We will consider these acts in their pure form, meaning by centralization not merely a change in administrative technique but, in our terminology, the substitution of one single policy-maker for what before were two or more independent policy-makers. Conversely, decentralization will mean, in this context, the substitution of two or more autonomous policy-makers for one single one, and not merely the execution by a larger number of agencies of a centrally-designed policy. As in the other examples discussed, decentralization or centralization may occur as a consequence of changed circumstances. Decentralization in a geographical sense may mean the granting of independence to a certain territory; and centralization an act of “integration” of a number of countries. Both may be an expression of new ideas and power conditions; and part of a reshuffling of political forces. Decentralization or centralization may also, however, refer to institutions rather than to geographical areas; and then they are equivalent to the creation of new institutions or the amalgamation of existing ones.

A distinction may be made between weaker and stronger forms of centralization. The weaker forms will often be called co-ordination and may differ among themselves; they range from mere information via consultation towards common decisions. In the case of information, the policy-makers inform each other about their policies; in the case of consultation they ask each other’s opinion but still take their decisions in isolation; in the case of a common decision, the decision may be taken in a meeting, where an attempt is made to arrive at one
generally accepted point of view. The stronger forms of centralization will be those where a decision by one body is taken and accepted by all concerned, even if some of the co-operating policy-makers are opposed. One form may be a decision by a majority vote of the policy-makers concerned. The strongest form is obtained if one single policy-maker is substituted for the co-operating group.

5.62 For a *comparative analysis* let us discuss two situations, to be called C and D, of which the former is characterized by a centralized policy, i.e. the existence of only one policy-maker, and the latter by a decentralized policy, i.e. the existence of several policy-makers.

The fundamental feature, from our point of view, of D, is the existence of several policy-makers with their own aims and means. Each policy-maker when manipulating his means will now influence not only the welfare of his own realm but, as a rule, that of the other policy-makers' realms also. The question to be answered is whether there will be a systematic difference in the way the means of economic policy will be handled in C and D. For the purpose of this analysis it appears to be useful to distinguish between four categories of means; the criterion being their effect in situation D on the welfare functions of the other policy-makers. It may be taken for granted that a change in a means of policy will always positively affect the welfare of the policy-maker's own field of action. If it also affects all the other welfare functions favourably, we call it a *supporting* means. If it affects all the other welfare functions unfavourably, we call it *conflicting*; if it does not affect the other realms' welfare it will be called *neutral*; and if the effects on other welfare functions are of mixed signs we call it a *mixed* means of policy. It will depend not only on the nature of the means but also on several other factors whether a certain means is of one type or of the other. As an example consider a group of countries, each of them with one policy-maker, in the situation D. Suppose they are all in a state of economic depression. Government expenditures are a means of economic policy and, in our terminology more particularly an instrument of quantitative policy. In these circumstances they are a supporting instrument: their increase in any one country will not only improve the economic situation in that country but also in the other countries. If all the countries are not in a depression, but some
are in a state of over-employment, government expenditure will be an instrument of mixed character. The character of some means of economic policy will also depend on the size of the areas or sectors considered. For large areas a larger number of means will be neutral or almost neutral, since the influence exerted on the outside world is generally smaller.

5.63 The consequences of any act of decentralization can now be formulated if we realize what determines the policy-makers’ choices. When making their decisions they will compare the advantages and the disadvantages involved, from the standpoint of their own sphere of activity. Since, in situation D, their own realm is restricted to only a part of the total, they will consider part, only, of the effects on welfare. In the case of a supporting means they will, therefore, underestimate the advantages to be obtained: they will not count, or will not fully count, the advantages accruing to the other policy-makers’ realms. In the case of a conflicting means they will, on the contrary, overestimate the advantages to be obtained, since they will not fully count the disadvantages accruing to others. If the problem is that of manipulating a neutral means, such a miscalculation will not occur; and, in the case of a mixed means, a closer investigation will be necessary to decide whether an overestimation or an underestimation of the advantages is likely to occur.

So far we have only discussed the influence that a manipulation of means of economic policy will exert on the welfare functions of the various realms involved, via the aims or target variables. In addition there is the “cost side”, that is, the disutility connected with the use of the means of economic policy. Here the chances of miscalculation are far less; most of the trouble involved will be borne by the policy-makers’ own realm.

Accordingly, we may conclude that there will be, in a situation D of decentralization, as compared with C, a tendency to make less use, or a less intensive use, of supporting means and to make more use, or a more intensive use, of conflicting means. The use made of neutral means will not be influenced, insofar as the costs involved are the same; and in the case of mixed means, what will happen will depend on further data; in certain cases there will be a less intensive, in other
cases a more intensive, use made of such means in a state D of de-
centralization.

5.64 Having pointed out the consequences of decentralization, we
need to appraise it as a policy. Our appraisal will evidently depend
on the welfare function we apply ourselves. The simplest situation
presents itself if all welfare functions involved are similar (cf. § 1.44);
if those of the separate policy-makers in state D are similar, there is
good reason to assume that the single policy-maker in situation C
has a similar welfare function, and there is good reason, too, to apply
that same welfare function for the appraisal of both situations.
Divergencies of taste are then excluded beforehand. Our appraisal
will have to depend on the two elements already mentioned, namely
the "cost side", or disutility involved in the use of means, and the
"effect side", or the utility obtained from the changes brought about
in target variables or in aims. We shall discuss the category of neutral
means first; on the effect side, there is no difference here between
C and D. It will depend on the disutility side whether C or D is to be
preferred. We think it is correct to say that there is, usually, a strong
argument in favour of decentralization arising from this disutility side.
All the arguments in favour of self-determination, and all the friction
cauosed by centralized treatment of matters of local, provincial, or
regional importance, may be quoted. In addition, the possibility of
erroneous decisions may be noted as an argument in favour of de-
centralization: for these will be less harmful in a state of D than in
one of C. We may call this complex of arguments the general argument
in favour of decentralization. It will obviously apply, not only to
purely neutral means of policy, but also to nearly neutral means. It
can only be compensated (and even over-compensated) by the effects
of clearly supporting and clearly conflicting means, concerning which
we have seen that decentralization may lead to under-, or over-, use,
respectively, in comparison to what a unique policy-maker would judge
to be optimal. And since there are no differences in tastes between
that unique policy-maker and ourselves we will agree with him as
long as the similarity assumption applies. Summarizing, therefore, we
may say that decentralization is to be preferred for nearly neutral means
and centralization for clearly supporting or conflicting means.
One implication of our conclusion should be stressed explicitly: it may be that in a state of centralization (in the sense of the presence of only one policy-maker) decentralization of certain means is preferred by that policy-maker himself, and that there is not, therefore, a state of centralization in the sense of a necessarily centralized handling of all means.

5.65 The situation is less simple if there is no general similarity of welfare functions. It may be that there are reasons why the appraisal of the situation should be based on another welfare function than the unique policymaker’s in state C. Such a difference of taste may occur, but is not directly relevant to the question of centralization as such, and will therefore be disregarded.

But there may also be dissimilarity between the welfare functions of the separate policy-makers in state D, and then some problems typical of centralization may arise: to what extent will it be possible to take account of differences in taste between different territories if policy is going to be centralized? If country A prefers 1% extra employment at the expense of 1% more taxes and country B does not desire this extra employment at such a price, then it is certainly possible to use different standards of ‘full employment’ for various parts of an integrated territory. This is an example of the possibility of a synthesis; in other cases a compromise, only, will be possible, namely in those cases where the difference of opinion refers to one and the same decision. If, in the centralized state, only one tax rate on a certain product will be permitted to exist for an integrated territory, that one rate will have to be a compromise between those who want a higher and those who want a lower rate.

5.66 Some examples may illustrate our analysis of this type of qualitative policy. Applying our analysis to the special case of international integration we conclude that such integration should imply the centralization of the use of instruments of a clearly supporting, or a clearly conflicting, character. Taking account of the possibility that one and the same instrument may change its character under changing circumstances, we would recommend centralization for instruments that are generally supporting or conflicting. We already mentioned the instrument of government expenditure as an example;
some form of central decisions seems very desirable indeed and is essential for a reliable international employment policy. National autonomy in these matters creates an undesirable element of uncertainty in international economic development. No doubt, resistance against such centralization is strong; the weakest forms of centralization i.e. mutual consultation about the surplus or deficit only in public finance as a whole, might be applied to begin with. Stronger forms of centralization will be better from the purely economic point of view; they will only gradually be accepted.

Trade impediments are another important example. Some difference of opinion may exist on their true nature. The popular feeling that they are a conflicting instrument, or means, of economic policy will not always be accepted by the economist. To the extent that the classical theory of international trade applies (i.e., among other things, in a state of perfect competition between a larger number of small countries) it may be maintained that trade impediments are adverse to every country's interest and so of a supporting character. The establishment of such impediments would simply be an act of stupidity, even from the country's own point of view. If the modern theory of optimum tariffs is accepted, tariffs below the optimum would be conflicting instruments, and those above it supporting ones. Their centralization would follow in both cases, but their optimum level may be a matter of dispute. The author wants to defend their abolition, anyhow, under the conviction that there are better instruments: subsidies and income transfers. It should be recognized, however, that subsidies to an industry comprising a large number of units are much more costly, even to the community, than import duties.

As a last example exchange rates will be quoted. They are usually of the conflicting type; if one currency is clearly overvalued or undervalued, exchange rate correction is a supporting instrument of policy. The centralized manipulation of such corrections has been accepted, in principle, as the basis of the competence of the International Monetary Fund. Exchange rates may be considered an instrument for adjusting national price structures to the competitive situation of the countries concerned. This function is also exerted, to some extent, by wage rates, which might be used for this purpose as an alternative, and which may even have to play their own role in a policy with several
aims (cf. section 4.1.). The arguments in favour of centralization of exchange rates also apply therefore, to wage rates; but the willingness to accept their centralization is almost completely absent.

5.67 International integration constitutes an important example of the centralization of administration. Our analysis enabled us to formulate some recommendations as to which means of economic policy should, and which should not, be made an object of centralized policy, that is, of integration. The analysis suggests that there is, in particular, a case for centralization with clearly supporting, and with clearly conflicting, instruments of policy. We saw that the same instrument will sometimes be supporting and sometimes conflicting, but it may be added that some instruments will usually be of one type and others usually of another type. To the extent that this is true we may add a further conclusion. Supporting means or instruments will have to be used more intensively in a state of centralization than they are being used in a state of decentralization. This may be called positive integration. Conflicting means will have to be used less, or even not at all, in a centralized state; this may be called negative integration. The extreme form of negative integration consists of the abolition of certain means of economic policy; such an abolition has been advocated with respect to import duties and quantitative import restrictions. It should not be forgotten that this type of integration only represents a very special case, essentially that of negative integration. Positive integration may be even more important.

One other instrument may be quoted as an example of positive integration: income transfers from one country to another. Such transfers are very rare in a state of decentralization; they may be important, and are possible, in a state of centralization.

5.7. Appraisal of Investment Projects

5.71 A choice between different economic structures has also to be made in development policy when a selection has to be made between a number of alternative projects. Such a choice represents, therefore, another example of qualitative economic policy, to be dealt with in this chapter. The choice will be based, as a rule, on certain ideas as to the results to be obtained by the execution of each of the projects;
and these results will be of a qualitative as well as of a quantitative character. Qualitative results are involved if, for example, a hospital or a school is to be built; they will be less clearly involved if purely productive projects are considered. In these latter projects, quantitative aspects prevail; and they may be complicated. Because of their complexity, quantitative results can also often be considered only in a more or less intuitive way. Priority tests are attempts at a more systematic calculation of the attractiveness of projects in which qualitative factors are not decisive. Private investors will take future profits as a test; but there are various reasons why, for the economy as a whole, private profits are not the best measure of a project’s attractiveness. We have discussed this subject already in § 1.4, dealing with the aims of economic policy. Private profits represent only part of the effects on the economy, since other incomes may also be involved. A better test for application by policy-makers would be the increase in total national income instead of the increase in profits. We will discuss this “national income test” at some length in the following sections. Before doing so we wish to state at once that such a test does not make a consideration of other aspects, not implied in it, superfluous. Qualitative aspects, as well as, for example, the influence exerted on the distribution of income, regionally or socially, are points in case. Mechanical tests, however accurately calculated, should be regarded as information for use by the responsible policy-maker together with information on these other aspects.

5.72 The importance of the national income test or similar tests springs from the fact that total national income is the material source of the economy’s welfare and that the contribution made to national income by a project may be very much more important than private profits of the investors might indicate. Incidentally, the reverse is also sometimes true, in particular, if such profits are obtained at the expense of some competing firm or industry. Moreover, the estimation of a project’s contribution is a rather complicated matter, better handled by experts. It consists of a technical part, concerning the product obtained as a result of the investment, and an economic part, concerning the repercussions on other sectors. The technical part will very often be of an agronomical, geological or engineering character
and will not be discussed here at all. Its results are assumed to be
available to the economist in the form of data. In the economic part,
a distinction has to be drawn between (i) direct and indirect effects,
often summarized as primary effects and (ii) secondary effects. Direct
effects are the contributions made by the production process to be
created. Indirect effects are the effects on the industries vertically
connected with that production process, including the industry to
which it itself belongs. They may consist of an increased production
of raw materials or of investment goods needed, or of an increased
production of finished products. They may also consist, however, of
a decreased production in a competing industry or enterprise. Second-
ary effects are effects created by the increase in income. In a situation
of unemployment the well-known multiplier effect is an example.
Whether secondary effects will occur depends on the precise setting
of the problem. As is so often the case, this is a vital point in priority
test calculations. It may be stated thus: a project’s contribution to
national income has, in principle, to be derived from a comparison
between two well-defined alternative developments of the economy,
one where the project is carried out, the other where it is not carried
out. Even when the problem is stated as precisely as possible, there
may, of course, remain difference of opinion as to whether certain
events to be expected for the future are or are not a consequence of
the execution of the project. The statement just given illustrates the
desirability to have a certain idea of the economy’s development
potentials. This part of the problem will be given attention to in
a simplified example (cf. § 5.73). An essential point here is the inter-
relation between the selection to be made and the general problem
of economic policy of the country, a point usually somewhat neglected.

One other aspect of the economic part of the analysis refers to the
consequences of disequilibria that may exist in the economy. These
may result in prices which do not reflect the “true value” of a certain
product or factor to the country. In a country with heavy structural
unemployment the market wage rate may be higher than the true
cost to the country (i.e. the product foregone) of an hour’s labour. In
a country with a balance of payments deficit the official exchange rate
may not be a true measure of the value of foreign currency to the
country. The contributions to be made to national income should be
estimated, as far as possible, on the basis of "true prices", to be called "accounting prices".

The essence of the solution consists of a trial and error process; a set of "accounting prices" will have to be assumed from which values for the contribution to discounted future national income \( \bar{Y}_0^h \) for all projects follow; those showing positive \( \bar{Y}_0^h \) will be selected; the equations expressing equilibrium in the scarce factor markets will have to be tested and, if they are not satisfied, another set of prices will have to be tried until the equations are satisfied. Of all sets of projects satisfying the equations the set showing the highest value of \( \Sigma^h \bar{Y}_0^h = \bar{Y}_0 \) should finally be taken. In principle boundary conditions (e.g. for taxes) can be added. The method may be made plausible in the following way. Since projects for which \( \bar{Y}_0^h \) is zero, will be on the margin of being rejected, it may be said that the marginal product to be obtained from a unit of a factor is equal to its accounting price. \( \bar{Y}_0^h \) therefore truly represents the net addition to discounted future national product \( \bar{Y}_0 \) to be obtained from the execution of project \( h \). By selecting the set of projects showing a maximum \( \bar{Y}_0 \) we obtain the maximum possible addition to national product.

The question may be posed whether not, among the means of policy to be used, the manipulation of the prices of scarce factors should also have been included. The question is the more interesting since one might expect that the optimum value that would then be found for these instruments would be equal to the accounting price. In other words: is not the best policy to be followed a policy by which, first of all, the difference between market (or official) prices and accounting prices is eliminated, and is not the use of accounting prices to be avoided at all? To the author the answer seems to be that this is correct, according to the central proposition of free exchange, but only for markets where those conditions are fulfilled under which free exchange can work and can exert its favourable influence. There are some notable exceptions to be expected. The most important one is that land and capital may be so scarce as not to permit full employment of unskilled labour, even in the least capital-intensive production processes; and that the resulting accounting price of zero cannot, for obvious reasons, be accepted as a market price. Another exception is that disequilibria which may be considered to be only temporary,
sometimes occur, and that, for reasons of social coherence, a stable market price, and hence a temporary deviation between equilibrium price and market price, is to be preferred.

5.73 PROBLEM 201. MODEL 20.
Aims: (a) fixed (or side conditions): full use of scarce resources, illustrated by equation (12) of model 20, referring to capital and by a condition on the use of foreign currency;
(b) flexible: maximum present value (at time 0) of discounted future income \( Y_p \).
Means: (a) optimum values of instrument variables \( T^d \) and \( T \);
(b) a proper choice of investment projects \( h \).
Comments: The problem is intended to illustrate the logical background of so-called “priority figures” attributed to projects of which a certain number has to be selected as a program of development. Usually techniques will have to be used which are somewhat, or even much, simpler than those implied in this problem and this model; these simplified techniques will be discussed later (cf. § 5.74). Correct techniques must, however, be derived from a proper setting out of the problem in hand. Essential features are the following: (i) the availability of a number of scarce factors of production, exemplified in this model by capital and foreign exchange \(^1\); (ii) an economic development dependent on and interrelated with the choice of the program; (iii) but also dependent on other means of policy, exemplified in our model by two types of taxes. More particularly it has been assumed that foreign capital will be made available in an amount equal to the import requirements of the program; that in particular the influence on future savings exerted by the program may vary according to the projects chosen and that an optimum rate of development is sought by the use of a “policymaker’s interest rate” representative of the valuation of future goods in comparison to present goods.

The problem, in the degree of generality chosen here, is a problem of dynamic programming with somewhat more complicated side conditions than usual, and the solution will not be treated fully but only sketched out.

\(^1\) For foreign currency a condition may have to be added, of the type:

\[
D = p^d (\Sigma h^d + i^p) - p^s + \frac{1}{r} \Sigma K^h + m^f \Sigma K^h = -c
\]

In principle, this equation has to determine the “accounting exchange rate” \( h \), which in its turn determines the choice of projects. Since the left-hand side of this condition may be a discontinuous function of \( h \), it may have to be read “\(|D + c|\) a minimum”.
There may be scope for making it more general still, for example, by increasing the number of scarce factors or the number of products; or by introducing non-linear relationships, especially in the production functions of the private sector [i.e. equations (8) and (9)]; or by introducing trends in some technical coefficients. Some other possible generalizations are those where the effects of one project are supposed to be dependent on the execution of another.

The solution will be found by the introduction of "accounting prices" for the scarce factors which may but need not coincide with actual prices, and application of the trial-and-error process described in § 5.72.

5.74 The method outlined in § 5.73 (problem 201) has not so far, to the author's knowledge, been applied, but it may be applied in the near future. Usually the data available for the private sector are not integrated with those for the projects into one coherent model. Often the data will be insufficient for so doing. In addition the year by year specification of future development meets with considerable difficulties or requires many arbitrary guesses. The model may be used, however, and is indispensable, in fact, for understanding the nature of the interrelations. Practical work has to be based on a number of simplifications; whether these are not inconsistent can only be judged with the aid of a model of this type.

If the "rest of the economy" is not explicitly introduced it will, nevertheless, be taken into account by corrections to the computed effects of the projects for the changes they cause in that sector. One method, rather frequently applied, of doing so, is to deduct from the contribution \( \bar{Y}_a^h \) project \( h \) makes to discounted future national income the value, at accounting prices, of the scarce factors of production which the project is supposed to withdraw from the rest of the economy. If a quantity \( a_t^h \) is being used of factor \( a \) and if the accounting price is \( i_t \), we will then correct our equation (14) by adding a term \( -i_a^h \) and not include \( \bar{Y}_a^h \) in equation (16). Sometimes we will also take account of the effect of changes in product prices on the income of the rest of the economy; denoting prices before the operation of the program by \( p_0 \) and after the operation by \( p \), this effect will be \( (p - p_0)v^h \) and may be important if \( \Sigma v^h \) is large or its composition one-sided, and \( \Sigma v^h \) is large in comparison to the world market of the products involved. Another way of taking account of the rest of the economy
consists of introducing so-called secondary effects, already discussed in § 5.71. This should not be done, however, in a state of full employment of the relevant factors of productions, for then no secondary effects will be possible.

Further simplifications may be introduced with regard to the projects themselves. It may be assumed, first, that accounting prices do not depend on the choice of projects but can be estimated independently of the precise program drawn up. The justification for this may be that the technical coefficients of the projects do not differ very much among themselves and that more or less the same use will be made of the scarce factors whatever the composition of the program, provided the program is of a given "total size".

Even if the accounting prices are determined by the process of trial and error described in § 5.72, and still more if the preceding simplification is applied, one may give up using different prices for each future year and assume constant accounting prices. In view of the many uncertainties involved this may often be the only practical method.

Again one may go one step further and refrain from introducing accounting prices at all. This may mean that market prices are used instead, in the assumption that they are a sufficiently accurate indication of the "true values" of the products and factors considered. It may, in rare cases, also mean that they are not needed in order to determine priorities. Such will be the case if only one factor is scarce; the criterion which may then be used for selecting projects being, instead of $\bar{Y}_S$, the gross product obtained per unit of this scarce factor. Those projects showing the highest values for this ratio should then be selected in such a number that the supply of the scarce factor is fully used.

5.75 A few remarks may be added about the accounting prices to be used. From the nature of the part they play in the process of selection it will be clear that the best method of estimating them is the trial and error method described in § 5.72. Often this will not be possible, as has already been observed. For some factors, a priori values for accounting prices may be estimated, however. For unskilled labour and other non-scarce factors the price may readily be taken as zero, plus the cost necessary to move the factor to the project. For foreign currency it will sometimes be possible to make estimates on an econometric basis. If
there is a deficit in the balance of payments, apart from the capital imports earmarked for development, and if some knowledge of the elasticities of demand for and supply of imports and exports can be derived from econometric research, calculations may be made as to the equilibrium level of the balance of payments under various hypotheses. One of the hypotheses may be that only the public sector uses accounting prices; the other that by a system of subsidies and taxes, the private sector can also be induced to use these prices in their calculations.

It is particularly important for development policy that the accounting price used for capital (i.e. the accounting interest rate), be based on a correct understanding of its function and meaning. The interest rate used in equation (17) will exert a considerable influence on the volume of investment chosen and hence on the rate of development. It has to represent, at the same time, the policy-maker’s “marginal discount rate for future products”, the marginal yield to be obtained from additional investment, and the marginal rate at which capital can be obtained. The latter cannot be represented by the low rates at which certain international loans can be obtained, but should rather be taken equal to the rate to be paid for additional capital if desired. The marginal yield of (additional) investment can be estimated from the projects and on this basis it may be possible to get some impression of the accounting interest rate.

5.76 The probable result of a correct use of accounting prices will be that, for countries with little capital and abundance of labour, labour-intensive industries will be particularly attractive and capital-intensive industries unattractive. In this context it should be noted, however, that the phrase “industry” stands for a combination of technically inseparable complementary activities. One cannot, for example, establish a textile industry without also creating a certain minimum of energy and transportation supplies. The construction of the necessary plants, as well as their operation, should also be included in the calculations. The construction process may sometimes be more labour-intensive than the operation process. It is the complete combination that matters.

“Labour”, in addition, should be understood to mean unskilled labour; skilled labour in a way implies, to some extent, an element of capital in that the training and education requires resources.