## CHAPTER V

INEQUALITY BETWEEN NUMBER OF TARGETS AND NUMBER OF INSTRUMENTS: ALTERNATIVE INSTRUMENTS OR INCOMPATIBLE TARGETS

1. Having discussed in chapter IV what could be called the "normal case" we will now devote some attention to abnormal cases. A priori there is no guarantee that the number of targets always equals the number of instruments. Economic policy as it is shaped in reality is not something so clear-cut that everybody concerned with it is immediately aware of the number of targets and of instruments. A somewhat more systematic attempt to give a picture of the forces intervening in the shaping of economic policy will be undertaken in chapter X. For the moment it is sufficient to state that targets and instruments may very well be different in number. We shall first discuss the case where n' > n, i.e. where there are more instruments than targets. This is the most attractive situation, from the practical standpoint, since it evidently means that there are, in principle, an infinity of solutions. The value of some instrument variables may be chosen freely, from which the other would then follow; or, to put it in another way, one instrument may, in a certain quantitative relation, be substituted for another. Evidently it is also possible either to eliminate one instrument or to add one more target. By so doing the "normal case" is reached again, apart from the cases mentioned in chapter IV, § 2.

Exactly speaking this situation will only present itself if a number of instruments only occurs in one or a few combinations, less in number than those instruments. In the general case where the number of instruments surpasses the number of targets, it will always be possible to find one among the infinity of solutions just mentioned, for which welfare, however defined, is a maximum. This would be the optimum solution. And it is only the consequence of our method to replace the maximum problem by fixed targets which introduces the "problems" of "too many instruments".

2. As an example we may first mention the problem that would arise if in our standard examples (1) and (2) one target should be dropped. It is clear that if, in example (1) only the target of an equilibrium in the balance of payments should be maintained and the additional target of high employment eliminated, an infinity of solutions would be possible. This is the well-known question of the balance of payments being possibly in equilibrium on "higher" and "lower" levels.

Another interesting example may be deduced from example (1) by the introduction of supplementary taxes as instruments. Elsewhere  $^{1}$ ) I worked out a version of this model with the following separate tax tariffs, apart from  $\tau$  already present in our basic model:

- $\theta_1$ : profit tax rate applied to gross profits  $\overline{\overline{Y}} \overline{\overline{L}} (1 + \theta_2)$ , where:
- $\theta_2$ : represents social charges, to be applied to total wages  $\overline{L}$ , as an additional payment to be made by entrepreneurs (even if formally assessed to workers, but paid by entrepreneurs), and
- heta : stands for all benefits received by workers, also expressed as a multiplier to  $\overline{\overline{L}}$ .

Assuming that these rates are small, it was shown that instead of  $\xi_0$  in example (1) we have now to write:

$$\xi_0 = -\tau (1.04 - c) - \theta_1 (\sigma - 1 - \overline{L} - \overline{L}\sigma) - \theta_2 \overline{L} (1 - \sigma) + \overline{\theta L} - \sigma + c + \overline{L}\sigma - 0.04$$

<sup>1)</sup> Loc. cit.

Taking  $\sigma = 0$  (no private hoarding) we have:

$$\xi_0 = -\tau - (1 - \overline{L}) \theta_1 - \overline{L} \theta_2 + L \theta$$

The meaning of this result is clear. It does not make any difference for total demand whether we reduce private incomes by an increase of:

- (1) the general turnover tax by 1 %, or
- (2) the profit tax by  $1/(1-\overline{L})$  %, payable by incomes with a total of  $\overline{Z} = 1 \overline{L}$ , or
- (3) social charges by a percentage of  $1/\overline{L}$ , payable on an amount of  $\overline{L}$ .

Each of them is equivalent to the others and reduces total demand by 1 % of national income. A similar result would be obtained by a decrease in social benefits by  $1/\overline{L}$  %. From the purely economic view-point and under the assumptions underlying our basic model, these instrument values would all be quivalent.

3. Turning now to the case where the number n of targets surpasses the number n' of instruments it is equally clear that generally we are then placed before insoluble tasks. Or, to put it in mathematical terms, we may now eliminate from the complete set of N' structural equations all the N irrelevant variables x and the n' instrument variables z and still be left with

$$N'-N-n'=t$$

relations in which therefore only y's and u's appear. Since N' = N + n and n > n', t > 0. We shall call these relations "target conditions", since the values to be chosen for the target values have to satisfy these conditions if the problem of policy is to be soluble at all. Targets are not free then; had they been chosen otherwise, they would have been

incompatible among themselves and their set would be inconsistent.

This situation is less unusual than the economist would believe at first sight. In practical political life it often happens that policies are defended which, if worked out accurately, would appear to be inconsistent. Claims for high subsidies and various types of social provisions cannot be combined with claims for low taxes; high real wages, an ambitious investment programme and "go slow" counsels are not compatible either, not to speak of an additional claim for "independency of foreign aid".

- 4. Though this may be just as clear without the mathematics of our models, there are more refined examples of incompatibility to be given if the problems are put in a numerical way and if account is taken of a number of boundary conditions. If in chapter IV, § 4 we found that the combined targets of (i) halving the balance of payments deficit and maintaining (ii) real national expenditure, as well as real wage rates and employment can only be obtained by an increase in productivity by 4 % and a nominal price and wage fall by 5 %, then the conclusion is that in case we consider a fall in prices or wages as excluded our targets are also incompatible. For the addition of these boundary conditions (that prices and wages should not fall) means in fact that we add one or two conditions and hence have 5 or 6 targets against 4 instruments. (In fact we have 5 targets only, because the real wage target may now be left out). Recent practical research work has made it probable that boundary conditions play a much more important rôle than is often believed. We shall discuss the consequences of their occurrence more systematically in the next chapter.
- 5. Incompatibility may of course be avoided by an increase of the number of instruments. In particular it will

often be useful to analyse carefully why certain targets are, at first sight at least, contradictory, and this analysis will lead us sometimes to detect new instruments that enable us to fulfill all targets or at least more than is first believed. This may be made clear in a non-mathematical way.

Let us suppose that two targets are considered, viz. the industrialisation of a country and the stabilisation of cyclic movements and that it is attempted first to reach these ends by tax policy. It will seem natural then to claim low direct taxes for the first target, since low direct taxes promote savings and investment. For the second target, however, high direct taxes seem desirable as they tend to stabilise consumption expenditure. There is, therefore, incompatibility of an elementary type between these two targets.

A closer analysis, however, may teach us that the second target may also be attained by conceiving a variable tax rate which need not be a high rate then. If the tax is lower in depression periods than in times of boom the same degree of stability may be attained as is reached by a constant but higher tax rate. In this case there seems to be an escape to the incompatibility of the two targets. It will depend on the inventiveness of the economist whether other cases can be solved in a similar way.

There are further reasons for the use of a rather large number of political instruments, even if the complaint of the complexity of contemporary policy has some justification. By a multi-instrument policy a "distribution of pressure" may be obtained which is

- (a) fairer to those experiencing specific hardships, i.e. account can be taken of more special circumstances and the pressure may be distributed more evenly over the various social groups; and it will at the same time be
- (b) more efficient in that the extent to which each para-

meter has to be changed will generally be smaller and hence the tendency to evade the regulation less strong.

For instance it will be better to manipulate, for the purpose of economic stability, both taxes and government expenditure instead of taxes or expenditure separately and it will be better to vary a number of taxes than merely one. In the case of our general example (1) I showed elsewhere 1) that an attempt to close the balance of payments by the use of only one instrument (either the wage rate or the profit margin) requires much greater changes than a policy where three instruments are used (as in chapter IV, § 3): wage rates, profit margins and indirect taxes.

Not every new instrument that may conceivably be added will, however, be very useful. One can easily imagine a number of "minor" or "very partial" instruments, such as import duties on unimportant commodities, that might seem to be additional instruments able to overcome our difficulty but hardly will do so. Their influence on the system as a whole is too restricted. In our technique this means that the numerical values required for these instruments would very probably surpass the boundary conditions (cf. Ch. VI) that have to be set for them.

<sup>1)</sup> Loc. cit. §§ 48 -- 51.