The Relation between Internal Inflation and the Balance of Payments

by J. Tinbergen

Summary.
1. Much controversy arises from lack of precision in the presentation of problems. This also applies to problems of economic analysis and of economic policy: they too may be considered from so many different angles and in so many different circumstances that a fruitful discussion requires a very precise setting of the problem under examination. This implies, inter alia, the indication of what is considered to be given, and of that which is unknown. Among the things that must be given, not only the structure of the economy considered, but also the nature of the problems should be mentioned; is it a problem of explanation or a problem of policy-making? In addition, other data are necessary, such as, in a problem of policy, the targets and the instruments.

2. - The target of any policy aiming at balance of payments equilibrium should be the maintenance or the increase in liquid international assets. The absence of a deficit on current account represents an important contribution towards this goal.

3. - Although the balance on current account is identical with the balance between national income and national expenditure, a deficit of given size will not be eliminated by a reduction in expenditure equal in size to that deficit. As a rule, a larger reduction will be necessary, due to certain "multiplier" effects.

1. Importance of an Accurate Statement of the Problem.

Economic policy is, in many countries, a rather controversial subject, and much harm is done by the lack of mutual understanding between various groups of the population. In postwar Holland a happy situation in this respect exists, partly due, it seems, to the fact that the economists of the various social groups have a common language, created by science. It would certainly be dangerous to exaggerate the influence of science, but neither should it be belittled. The essence of scientific treatment consists above all in the accurate statement of the problem under consideration, and there is still much need of insisting on this, even in the case of discussions among experts. The subject to be discussed in this paper, viz., the relations between internal inflation and the balance of international pay-
2. The Target of Balance of Payments Policy.

Balance of payments equilibrium is now generally considered to be a necessary factor of any sound economic policy. It is less certain what precisely it should be done by that phrase; various versions are available and recommended. Two well-known concepts are (1) equilibrium in all item except gold payments and further accommodating items (2), or on the other hand (3) equilibrium on current account.

Some remarks may be made on this topic before embarking on the main part of our argument. First, it does not signify that even a surplus is not equilibrium for countries that have not a sufficient gold reserve. By a sufficient gold reserve, a reserve is meant that is sufficient to meet the risks to which an open country is exposed in the course of business cycles or incidental disturbances. It is not easy to indicate exactly how much such risks are; one element in the extent of the balance of payments which would be lost if the country concerned should follow, in a period of world depression, a policy of high employment. If the gold stock needed for meeting these risks should be larger than a proportional part of the world gold stock, then such a proportional part of the stock might be the limit. A problem here is what principle of distribution among the various countries of the world would be the best; should it be the value of their trade or should it also depend on the fluctuations in that value? We think it should, but this will not be the topic of this paper.

A second remark to be made with respect to the concept of balance of payments equilibrium refers to the exact nature of the concept that should be kept constant or even rising, Is it the gold stock only? Should not it be total external assets including e.g. foreign bonds and stocks? In our opinion a correct target would be total liquid international assets.

This definition would exclude such bonds or stocks as are not readily salable at any moment, but it might — and should — in our opinion include commodity stocks or world staples. We emphasise this possibility since the lesson of 1951 and 1952 has been, in our opinion, that a switch from gold to raw material stocks and back, which we had between the end of 1950 and the end of 1952, does not represent a real worsening or improvement in the situation of a country. One should not be scared by a decrease in the gold reserve, if it is nearly equaled by a simultaneous increase in raw material stocks; nor should one be particularly pleased by an increase in gold stocks, if raw material stocks are exhausted to about the same extent. To be sure, raw material stocks should not be valued at their current prices, but a discount of say 20% could be made, to cover price risks. But attention should be paid to their existence. The problem of securing better statistics that would enable one to follow the course of raw material stocks is only a technical, and certainly not an insoluble problem.

However, whatever be the answer given to the question asked in this section, equilibrium on current account is the target of the balance of payments which will always be an approximation to our aim, and for simplicity’s sake we shall base our analysis on this approximation. Our findings may be easily extended to the more complicated target above stated.

3. Internal Inflation and the Balance of Payments

The fundamental relation upon which we are going to build our main argument is the well-known equality of

(a) the surplus on the current items of the balance of payments and

(b) the surplus of national income above national expenditure.

For our further deductions it is convenient to express this equality in symbols. Indicating by:

- $E$ export value of goods and services;
- $M$ import value of goods and services;
- $Y$ national income, net, at market prices, and
- $X$ national expenditure (equals consumption + net investment), we have:

$$E - M = Y - X$$

(1)

The equation is the consequence of nothing but a definition, namely the definition of national income: this may be defined as value added to imports by the national process of production, or:

$$Y = (X + E) - M$$

(2)

In this equation the expression in brackets represents the value of national output, whereas $M$ is the input. Indicating by $D$ the deficit on the balance of payments (current account) we therefore have:

$$D = M - E = X - Y$$

(3)

This equation has much in common — from the purely formal point of view — with the famous equation of Irving Fisher for monetary circulation. It is a truism and so cannot be doubted; but the use made of it will depend very much on the problem to be solved, i.e. on which of the symbols represents known
Here $\xi_2$ represents what we termed the autonomous part of national expenditure; $\xi_{i2}$, or $\mu$, might be called the autonomous part of imports. The other new symbols $\xi_i$, (and $\mu_i$) indicate by how much expenditure (or imports) increases if national income increases by one unit; they are the well-known "marginal propensity to spend" and the "marginal propensity to import". We cannot now deliberately change $X_t$, but we can change the autonomous part $\xi_t$, hence the problem is to find $\xi_t$, provided that $D = 0$ and by using (4) and (5).

We will discuss this problem in two consecutive stages corresponding to two different and very important aspects of the subject. To begin with, we suppose prices to remain unchanged and hence the entire policy to be one of changes in volume. In the second stage, we assume that prices may also be used as an instrument of policy.

The simplification obtained in our first stage is considerable. We may now say that exports will not change; at least in so far as the initial position was not one of shortage, where part of the foreign demand could not be met. If exports do not change, the adaptation will have to come from imports only; and evidently income $Y$ will have to fall by so much as will cause a decrease of $D$ in imports. Since imports, according to (5) show variations $\mu_t$ times those of $Y$, the reduction needed in $Y$ will be

$$\Delta Y = \frac{D}{\mu_t} \quad (6)$$

This reduction must be the result of a change $\Delta D_e$ in the autonomous part $\xi_t$ of national expenditure; and since, according to (3) and (4):

$$\Delta D = -D \Delta X + \Delta Y = \Delta D_e + \xi_t \Delta Y - \Delta Y$$

we find:

$$\Delta D_e = (1 - \xi_t) \Delta Y - D$$

or

$$\Delta D_e = \left(\frac{1 - \xi_t}{\mu_t} + 1\right) D \quad (7)$$

From this result it appears that, in fact, the reduction in autonomous expenditure must exceed $D$; it must be $\frac{1 - \xi_t}{\mu_t} D$ larger than $D$. Here too a "multiplier" must be applied; it is different, however, from the Keynesian multiplier, in which the marginal propensity to import $\mu$, does not appear. Moreover it will be one — and therefore, in a sense, "absent" — if the marginal propensity to spend $\xi_t$ is equal to 1. It will clearly be larger than it if that marginal propensity to spend is well below 1. This may in particular be the case if we are interested in short-term effects, and if it is assumed that government expenditure is independent of government revenue, whereas the marginal rate of taxation is considerable. Taking that rate as equal to 30%, and assuming that the public spend all their disposable income, we find that $\xi_t = 0.7$. If moreover, we take $\mu_t = 0.5$, as is the case in the Netherlands, we obtain for the value of our multiplier $\frac{1 - \xi_t}{\mu_t} + 1 = 1.6$. Hence, in order to eliminate a balance of payments deficit of 1 billion guilders, a reduction of autonomous national expenditure by 1.6 billion guilders would be necessary. The corresponding reduction in imports would be 4 billion guilders.

Evidently the employment situation would then be considerably worsened.


This raises the question whether a solution may not be found which would not threaten the employment situation. It is sometimes held that balance of payments equilibrium and full employment are incompatible. Apart from the somewhat ambitious term "full employment" which we shall not use but replace by high employment, we think this statement of incompatibility is a clear example of the need of drawing a net distinction between various problems. Surely, they are incompatible as long as only one instrument — say, State expenditure — is handled with a wish to attain both goals. But they are not so, of course, providing we accept one further instrument of policy. The most appropriate instrument in this case would be the price level of export goods. It might, however, be some other factors influencing exports, say a better sales organi-
Let us assume that a fall $\Delta p$ in export prices will cause export value to rise by $-\Delta p$; then we have

$$\Delta E = -\Delta p$$

from which relation we may calculate $\Delta p$ as soon as is known. Again we raise the question by how much national expenditure will have to be reduced. We must now take account of the influence of the price level on both income and expenditure. This means that we have to introduce a relation:

$$\Delta Y = \gamma p$$

(6)
telling us how $Y$ changes with changing price level $p$. Moreover, we have to refine relation (4), which was meant to be valid for constant prices only. In a general way it may be replaced by:

$$\Delta E = \Delta y \cdot \Delta Y = \Delta \cdot \Delta Y$$

(7)

As a first approximation we may, however, neglect the trade with $\Delta p$: this is particularly true if people just spend their disposable income, regardless of prices. In order not to complicate our argument, we shall therefore put $\Delta y = 0$.

It should not be forgotten that (6) is only meant for a change where the volume of employment does not alter; it cannot be used therefore in cases of changing volume.

Having found $\Delta p$ from (8) we may now, generally speaking, determine $\Delta Y$ from (6) and, with it $\Delta y$, and again using (3), $\Delta p$.

The result is:

$$\Delta p = \left\{ 1 + \frac{\gamma}{\delta} (1 - \Delta y) \right\} \Delta D$$

Again we find a multiplier, at least as long as $\Delta y < 1$. Another condition for this multiplier making its influence felt is that $\delta$ should not be very large; in other words, if the demand for exports is very elastic, this multiplier will be absent. Evidently its presence is due to the need of reducing prices; if exports are to be expanded it is not sufficient to simply make room $a$, in the destination given to the national resources, for an increase in exports equal to the deficit $\Delta D$ that must be eliminated; a larger reduction in autonomous expenditure is needed, since if increased exports can only be achieved by having one person has to export more in order to pay for the same imports. (By the way, it may be observed that in this particular case there is no difference between the reduction in autonomous expenditure and the reduction in total expenditure).

The train of thought just exposed was at the basis of the policy of the Dutch government early in 1951, when it decided (2) to cut total national expenditure by about 1.6 million guilders, in order to make room for a deficit, in the current items of the balance of payments, estimated at 1.1 million, and partly due to the change in terms of trade after 1949, partly to the increase in the armament programme. The programme was based on an estimate of this multiplier of about 1.5.

At the same time, in agreement with the trade unions, who showed full understanding of the situation, wages were not permitted to rise as fast as the price level; in this way the relative price fell in relation to the outside world was secured.

5. Prices not always a Sufficient Regulator.

High employment and an equilibrated balance of payments are not therefore incompatible with each other; on the contrary the two should be aimed at simultaneously, which in principle is possible by the application, apart from budget policy, of a wage-and-price policy (3).

Apart from the difficulty to adjust wages downward, there is the well-known difficulty about the possible inelasticity of exports. As far as present statistical evidence goes, there are countries for which the short-run elasticity is so low that a reduction in export prices does not raise but may even reduce the value of exports (4). This seems to be the case with regard to certain highly industrialised countries, among which the United Kingdom and possibly also Japan. It seems probable that over a longer period, say three years and more, the elasticity may be high enough to eliminate this cause of concern. But it may very well be that the instrument does not work in emergency situations. The instrument will be unworkable, even if the values of $\gamma$ are somewhat above zero, for then already the necessary price changes are too large to be realistic. In such emergency situations the only remaining possibility is that of quantitative restrictions, at least temporarily. It should not therefore be regarded purely as a token of a spirit of dirigisme if a country like the United Kingdom has applied this instrument; sometimes the circumstances may impose it, even on the most liberalistic government.

6. Interrelations of Instruments for Multi-Target Policies (5).

As observed above, the simultaneous attainment of more than one target requires the application of more than one instrument of policy. It has sometimes been believed that each instrument serves one of the goals and that there can therefore be a certain independence of each from the others. One example is that the responsibility for balance of payments equilibrium would be in the hands of the financial authorities, the care for social justice and hence for the wage level in the hands of the social authorities etc., and that all these authorities would act independently one of the others. It is our conviction that this is only possible under special conditions and that, as a rule, the degree to which the instrumental variables must be changed is interdependent and, for each instrument, dependent on the whole set of targets. Our discussion of balance of payments policy already shows this. If we add to our targets that of high employment we must change the amount by which national expenditure has to be reduced: the amount found in equation (11) is different from the amount found in equation (9). How far this interdependence holds good, certainly depends on the precise nature of the problem. It is correct to say, e.g. that a change in wage rates does not affect the balance of payments equilibrium if wage-earners and non-wage-earners both spend their available incomes entirely, and if the government does the same. This may be correct for long-term reactions, but it is certainly not so for short-term ones. So here again, the accurate statement of the problem appears to be important.

This interdependence of targets and instruments is of some importance for the organisation of economic policy. There cannot be a group of independent decisions on the various branches of economic policy; the decisions regarding each instrument can only be taken if all the targets are known; and the authorities responsible for the changes in each separate instrument must therefore act in conformity with certain indications given by a central authority, as a rule the Council of Ministers. It also follows that it is no use to assign to one authority the task of attaining one of the targets only; the authorities should, so to speak, deal with the instruments of policy and not with the targets.


The correct handling of the whole body of instruments for economic policy requires an insight into the functioning of the economy which is illustrated in a simplified way by our foregoing deductions on financial policy. To quote just one example, it is desirable to know the size of the coefficient in our formula (5) showing to what degree exports react on prices. This relation is illustrated by graph 1, where it is found that a reduction between 1948 and 1951, by about 15%, of the relative prices of Dutch exports was accompanied by an increase by 40% of the relative Dutch export volume. The word «relative» here refers to the ratio of the Dutch figures to the corresponding figures of the competing countries as a group. Graph 1, of course, represents a very simple way of investigating a relation. Before taking it for granted that the correlation shown has
causal implications, one should investigate the nature of the relationship shown by economic analysis. It is likewise desirable to test the relation for individual markets and commodities. Finally, many statistical problems, on which a vast literature exists, are involved.

The knowledge of the coefficients relevant to economic policy can therefore be obtained only by specialised econometric work. It would indeed be desirable that such work should be done partly in each country when purely national problems have to be solved, and partly by an international agency when the problems to be considered are of importance to many countries. Examples of the latter problems are the forecasts of the main raw material prices or comparative studies on an international scale of some specific relation. Useful work is already being done by such institutions as the United Nations Secretariat, the International Monetary Fund, The Food and Agricultural Organisation, The Economic Commission for Europe and the Organisation for European Economic Cooperation. Still more could be done. Economic policy and planning in the various countries could be placed on a better and more efficient basis, if some fundamental work were undertaken by the U.N., comparable to the analysis of world development made by Colin Clark in his "Economics of 1960." Maybe the work on behalf of employment policy will develop into such an analysis. It should somehow be coordinated with the other work already mentioned.

Monetary Policy in Sweden

by

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In the last few years the official attitude to monetary policy in Sweden has undergone a slow but significant change. The illusions of the earlier postwar years, when it was believed in official quarters that even a very strong inflationary pressure could be checked without recourse to monetary restrictions, have been shattered. Monetary policy is again given its logical rôle as a stabilizing influence in the economy. However, this change in the official attitude does not mean a simple return to orthodoxy in the monetary field. The kind of restrictive monetary policy that has developed in Sweden in the last few years is quite unorthodox in the sense that it does not operate through an increase in the cost of money but mainly through an increased scarcity of loanable funds. To prevent the scarcity of money from raising the level of interest rates recourse has had to be taken to a series of direct regulations of the lending activities of the credit institutions.

The object of this article is to discuss briefly the scope and methods of this new monetary policy, and to describe the background from which it developed.

Monetary Policy in the Earlier Postwar Period.

From the end of the war up to the summer of 1950 monetary policy in Sweden was almost completely passive, and the central bank, the Riksbank, did not play any decisive rôle in the shaping of economic policy. The conditions of cheap and easy money that existed at the end of the war were maintained unchanged in spite of very considerable changes in the general economic situation. The objective of monetary policy during this period, if one can talk of any objective at all, was to stabilize the interest rate rather than to stabilize economic developments. At the end of the war the official discount rate of the Riksbank was 2½ per cent and the yield on long-term Government securities 3 per cent. These strategic money rates were maintained unchanged all through the period up to the autumn of 1950. Any market pressures tending to upset this pattern of interest rates were quickly and effectively counteracted by Riksbank operations.

This meant that the weapons of monetary policy were deliberately discarded, in spite of the fact that very severe strains on the economic situation of the country developed very early in the postwar period. These strains were first clearly seen in the development of the balance of payments situation. Sweden emerged from the war in a very strong international payments situation but as from the second half of 1946 the situation deteriorated very rapidly. There was a large degree of income inflation in the country and the excess purchasing power led to a very sharp increase in imports from abroad while for the same reasons Sweden's exports lagged behind. As a result of this pressure the combined reserves of gold and foreign exchange of the Riksbank dropped from nearly 3,000 million kronor in the beginning of 1946 to around 500 million kronor in the summer of 1948.

Traditionally such a development would very soon have created a severe shortage of money in the market. There would have been a strain on the liquid resources of the banks and the banks would have had to curtail their lendings very rigorously. The increased shortage of money and credit would in such a situation have served to curb the tendencies to increased imports and would thus sooner or