NATIONAL ACCOUNTING AND ECONOMIC POLICY DECISIONS
(with special reference to the Netherlands)

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I. INTRODUCTION

IN the Netherlands there exists already a long-term tradition in quantitative economic analysis, and its application to policy decisions has gradually gained in importance. Twenty-five years ago – in 1936 – the Association for Economics and Statistics asked some economic experts – as it does each year – to report on a specific subject, for which was chosen a highly topical one, viz. a discussion of the macro-economic policy measures to be taken under the prevailing circumstances. In particular, one had in mind that due attention should be given to the desirability of the devaluation of the guilder, since the gold standard had been maintained such a long time in comparison with other countries and unemployment consequently had risen to an unprecedented height.

One of the papers presented to the Association was prepared by Tinbergen in a way that was very unusual at that time, since he based his analysis on an econometric model, the first one constructed for the Netherlands' economy.[1]

Twenty-five years later – in 1961 – the problem of the stability of the exchange rate was of current interest again, under less dramatic and reversed circumstances. Unemployment was as low as never before and the current account of the balance of payments showed a considerable surplus, a combination of factors calling for an upward revision of the value of the guilder. Again, the need for quantitative analysis was strongly felt. Again, an econometric model was published in that year,[2] not in connection, however, with current economic events, but as a further result of the research work in this field performed by the Central Planning Bureau in the last ten years.

Already at an earlier date, in 1955, the Central Planning Bureau had published a model for the Netherlands' economy,

[1] cf. J. Tinbergen, *Selected Papers*, North Holland Publishing Company, Amsterdam, 1959.
[2] In the Central Economic Plan 1961. An English translation of this plan has been published in September 1961.

largely similar to the 1936 one. The 1961 model differs from the earlier ones, in particular because it pays more attention to the dynamics of short-term economic developments. But in other respects there remain many similarities, all the models being of a macro-economic character, describing short-term (annual) developments and constructed for the purpose of forecasting as well as evaluating policy measures.

II. SHORT-TERM FORECASTING

The procedure of short-term forecasting and evaluating policy measures can easily be described in general terms. Each model consists of a set of structural equations, which can be written in the following form, using matrix notation and neglecting disturbances.

$$By + \Gamma z = 0 \tag{1}$$

where y refers to the jointly dependent variables and z to the predetermined ones. From (1) follow the reduced forms

$$y - \Pi z = 0 \tag{2}$$

in which each of the jointly dependent variables is written as a function of the predetermined ones.

The latter contain, *inter alia*, the instruments of economic policy, while some of the dependent variables represent policy targets. Therefore the reduced forms make it possible to obtain different forecasts under different policy assumptions. Such alternative outcomes can be judged according to the fulfilment of the targets, thus facilitating the policy-makers' choice.[1]

Examples of this procedure are found in all the Central Economic Plans published in the last ten years.

III. THE USE OF NATIONAL ACCOUNTS IN FORECASTING

The role of the national accounts in this procedure is manifold. Since the models, including the 1936 one, are in terms of the (macro) national accounts – as is highly desirable – the latter largely contribute to the construction of the structural equations, provided, of course, the time series are not too short. The forecaster benefits from the consistent statistical information supplied by the national accounts on the current economic

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[1] Alternative forecasts are also made when large uncertainties are involved. For obvious reasons, the number of alternatives like these is as limited as possible.

situation which is the more important, since current events may, under given conditions, largely explain the behaviour of the economy in the near future. The policy-maker, in turn, obtains a much clearer insight as to the realization of the targets and its policy implications, at least for those targets and instrument variables incorporated in the national accounts' system.

It is, of course, neither possible nor desirable in a short paper to describe fully the interrelationships between the national accounts' system, forecasting and the formulation of policy directives. The attention is concentrated, therefore, on one aspect, for which the monetary is chosen. In this connection, it will be shown below, first how monetary variables can be introduced into the model, and second how the monetary flows are registered and connected with the model as well as with monetary policy. A few remarks will be added on the monetary policy experience in the recent past.

The choice of the monetary aspect is also motivated by the fact that the successive models show a definite trend in this respect. In the earlier models (1936, 1955) monetary variables did not enter at all, in contrast to the more recent approaches where they receive more attention. This already makes clear that considerable difficulties were encountered in this part of the macro-economic analysis. This is still true, be it to a lesser extent, and the following should not be interpreted as to suggest that these difficulties are now overcome.

IV. MONETARY ASPECTS

Experience shows that justice can be done to the monetary aspect by introducing available liquid reserves in some structural equations, notably in the investment equation. Since the statistical information on monetary flows and stocks is less satisfactory for the pre-war period, an investment function was established on the basis of post-war data only (years 1950–1960). As a – rather preliminary – result the following formula was obtained:

$$i/v_{-1} = -1.09\,u_{-\frac{1}{2}} + 0.35\,L_{-1} + 0.32\,t - 2.28$$
$$\quad\quad (0.21) \quad\quad (0.11) \quad\quad (0.09) \quad\quad\quad (R = 0.94) \quad (3)$$

In the above formula (i) represents the volume of business investments in fixed assets. Autonomous investments like investments by public enterprises and residential construction are

excluded, the latter being also under complete Government control. The formula states that the relative level of investments, i.e. investments divided by total sales (v) one year lagged, varies inversely with the level of unemployment (u) half a year lagged, where the unemployment level is meant to refer to the rate of capacity utilization. On the other hand, investments are positively correlated with the availability of liquid reserves (1), again half a year lagged. The variable (l) is defined to include the sum total of primary and secondary liquidities (excl. currency money in circulation), divided by national income. Therefore, (l) may represent the liquidity position of the business sector. Finally, a trend factor (t) has been added, to allow for the negative trend in (l).

It is realized that this is a preliminary result, since the sample period is very short. Much longer series under changed conditions are needed to see, e.g., whether non-linearities enter into the investment equation, as might be expected. However, the conclusion seems justified that the availability of liquid resources serves as an important – though not the most important – independent variable in the investment equation.[1] As far as present knowledge goes, this is less true for other structural equations. In particular, liquid reserves played a minor role in the explanation of private consumption and stock formation. Very probably, the influence of other monetary variables like interest rates was also negligible in the period considered here.

V. THE MONETARY SURVEY

The monetary flows are registered in the so-called monetary survey, an abbreviated example of which is given in the table below.[2] In actual practice five sectors are distinguished: households and enterprises, institutional investors, central Government, local authorities and foreign countries. In the example the number of sectors has been reduced to three. It is noteworthy that banks and other liquidity-creating agencies are excluded from the enterprises sector, as far as their liquidity-creating function is concerned.

[1] The investment function presented here differs in some respects from the investment equation in the 1961 model. The latter was essentially based on pre- as well as postwar data. The monetary variables in the 1961 model are, therefore, incompletely connected with the monetary accounts' system as it was developed in the after-war period.

[2] The monetary survey is more fully described in *Monetary Statement and Monetary Analysis*, Monograph No. 7, Central Planning Bureau, 1959.

The survey starts with savings per sector, resulting from the income and expenditure accounts, or – in model terms – from the consumption and tax equations. The difference between savings and net investments is called the income surplus, which together with the amounts of capital transfers received, results in the 'net increase in financial assets'. For the central Government for some countries the latter balance serves as a criterion of its budgetary position. In the Netherlands long-term debt redemption has to be taken into account in addition, to get a very close approximation of the central Government's surplus mentioned in the annual budget memorandum.

Still other balances appear in the survey. After deduction of Government and short-term credits, the 'finance surplus' is obtained, which can be used, *inter alia*, for supply on the capital market (row 6). The resulting 'liquidity surplus' is the algebraic sum of the accumulation and cancellation of liquidities. Liquidities are always defined to include primary and secondary liquidities (near-money). The latter mainly include time deposits and short-term Government debt. A necessary condition for primary as well as secondary liquidities to be considered as such is that they are held by non-liquidity-creating agencies.

MONETARY SURVEY[1]
(summary table)

(Billions of guilders)

	Private sector	Government	Foreign countries
1. Savings (on accrual basis)	6·89	2·93	—1·11
2. Net investments	6·93	1·78	
Income surplus (1–2)	(—0·04)	(1·15)	(—1·11)
3. Capital transfers received	0·34	—0·37)	0·03
Net increase in financial assets (1–2 +3)	(0·30)	(0·78)	(—1·08)
reflected in:			
4. Government credits supplied	—1·18	1·26	—0·08
5. Increase in claims on account of differences between cash and accrual basis; miscellaneous[2]	0·05	0·38	—0·43
Finance surplus (1–2 +3–4–5)	(1·43)	(—0·86)	(—0·57)
6. Supply on capital market	0·86	—1·16	0·30
Liquidity surplus (1–2 +3–4–5–6)	(0·57)	(0·30)	(—0·87)
7. Cancellation of (primary plus secondary) liquidities through redemption	—0·35)	0·30	
8. Accumulation of (primary plus secondary) liquidities	0·92	0·00	

[1] Source: Central Economic Plan 1961. The figures are also taken from this plan. All figures represent net amounts.
[2] Includes statistical discrepancies.

Not too much importance should be assigned to the balances in the monetary survey, in the sense that they can provide general monetary policy standards. In given cyclical conditions, for example, a zero liquidity surplus to be realized by the Government may or may not be the appropriate rule. The procedure that should be followed here was already indicated in section (II) above: the monetary policy rules have to be derived from the macro model in terms of the realization of policy targets and all the instruments available to that end. Of more importance, therefore, is the connection between the monetary survey and the macro model.

Obviously, no information is obtained with regard to the stock of liquidities appearing as independent variable in the investment equation. The survey only contains – in the last row – the accumulation of liquidities, i.e. the additions to stocks. Assuming the stock figure to be given for some date, the connection with the model follows when the accumulation of liquidities by the private sector (L) is seen to consist of three components.

$$L \equiv L_F + L_G + L_B \tag{4}$$

where L_F is the inflow of liquidities from abroad, L_G the creation of liquidities by the Government and L_B the creation of liquidities by banks on behalf of the private sector. The above identity is easily verified in the numerical example of the monetary survey, since

$$0 \cdot 92 \equiv 0 \cdot 87 - 0 \cdot 30 + 0 \cdot 35 \tag{4a}$$

In model terms L_F results from the equations for imports and exports of goods and services and from the largely 'autonomous' imports and exports of capital. Autonomous also is L_G, the monetary policy instrument being the Government's resort to the capital market. Thirdly, bank credits supplied to the private sector showed a definite pattern in the after-war period; on the basis of quarterly figures the following relation was obtained

$$L_B = 180 \cdot 5 \, o_{-\frac{3}{4}} + 200 \cdot 5 \, l_B + 0 \cdot 5 \, t - 200 \cdot 8$$
$$\quad (11 \cdot 4) \qquad (92 \cdot 7) \quad (0 \cdot 6) \qquad\qquad (R = 0 \cdot 94) \tag{5}$$

where 0 represents the quarterly increase in gross national output, and l_B the liquidity position of the banks. The influence of (l_B) on (L_B) appears to be very small. Obviously, (L_B) is partly under control of the Central Bank and therefore subject to an

autonomous component to be added to (5). This may give rise to introduce an autonomous variable to the investment equation given earlier, in which only the liquidity effect of additional bank credits was considered, but not their direct impact on investment activity.

A final adjustment has to be made. Liquidities in the investment equation were defined to exclude currency money in circulation, whereas the monetary survey gives total accumulation of liquidities in the private sector. The latter may be less representative for the business sector. This explains the exclusion of currency money which is – as experience shows – closely related to private consumption and, therefore, predictable.

VI. LIQUIDITY

A few remarks on the creation and accumulation of liquidites in the period 1950–60 may be added. The figures are given in the table below, following indentity (4) of the preceding section and expressing the creation of liquidities in terms of national income, in order to eliminate the growth factor. The figures are compared with the level of unemployment at the beginning of each year.

The unemployment figures show the fluctuations to which the economy was subject in the period considered. As has already been said, liquidity creation by banks (L_B) was mainly related to the changes in gross national output. This suggests that the volume of bank credits was largely determined by factors on the demand side, notwithstanding the policies of contraction and expansion followed in some years. Under these circumstances it proved impossible to judge the effectiveness of such policies as to their impact on the volume of bank credits.

As might be expected for an open economy like that of the

CREATION OF LIQUIDITIES

(as percentage of national income)

	'50	'51	'52	'53	'54	'55	'56	'57	'58	'59	'60
L_F	−6·4	−1·3	8·5	4·6	0·8	0·8	−3·3	−0·9	6·8	3·8	4·2
L_G	−0·9	1·0	−6·2	−2·3	0·5	0·8	0·8	2·4	0·3	−3·1	−3·0
L_B	2·1	0·7	1·2	0·9	1·8	1·8	1·5	0·7	−1·1	1·7	1·7
Total (L)	−5·2	0·4	3·5	3·2	3·1	3·4	−1·0	2·2	6·0	2·4	2·9
$U_{-\frac{1}{2}}$[1]	2·4	2·7	4·1	4·6	2·8	1·9	1·4	1·0	2·4	2·7	1·8

[1] As a percentage of the dependent working population.

Netherlands, the inflow of liquidities from abroad (L_F) was quantitatively important and subject to considerable fluctuations.

The latter also holds for the creation of liquidities by the Government (L_G). In the earlier years – up to 1956 – Government monetary policy appears to have been pro- rather than anti-cyclical. Remarkably large was the cancellation of liquidities in 1952 when unemployment reached a post-war maximum. A partial explanation of this may be found, however, in the very considerable outflow of liquidities to abroad in 1950 and 1951, which resulted in a relatively low level of foreign exchange reserves. After 1956 monetary policy was anti-cyclical, the creation of liquidities by the Government being large in 1957 when unemployment was rising, the cancellation being large in 1959 and 1960 when unemployment was falling to very low levels again.

VII. CONCLUSIONS

The conclusion is that some integration of the monetary survey with the macro model seems possible. This integration is mainly based upon the introduction of monetary variables to the investment equation. Such an incorporation of the monetary sphere into the model makes it possible to judge, in given conditions, the effectiveness of monetary policy and to lay down the policy lines to be followed in this respect. A further specification of these policy lines can be obtained from the monetary survey.

In the actual practice of cyclical policy after the war monetary instruments played an important role. This is partly explained by the fact that monetary instruments are relatively easy to handle. The more stress should be laid, then, upon a comparison of monetary and other instruments as to their impact on economic developments.

It is realized that the results obtained are still subject to important qualifications. In particular, much longer time series are needed, under more varying conditions, to arrive at more definite conclusions.