Volume Title: The Responsiveness of Demand Policies to Balance of Payments: Postwar Patterns

Volume Author/Editor: Michael Michaely

Volume Publisher: NBER

Volume ISBN: 0-870-14221-6

Volume URL: http://www.nber.org/books/mich71-1

Publication Date: 1971

Chapter Title: Approaches, Concepts and Methods

Chapter Author: Michael Michaely

Chapter URL: http://www.nber.org/chapters/c3435

Chapter pages in book: (p. 3 - 29)

PART I

GENERAL APPROACH AND FINDINGS

CHAPTER 1

APPROACHES, CONCEPTS AND METHODS

1. Subject Matter of the Study

The basic problem which this study seeks to explore is the responsiveness of demand policy in the postwar world to the balance-of-payments position. From this problem follow further questions which the study will investigate: Was the reaction to balance-of-payments fluctuations uniform among countries, or were marked differences apparent? Was it uniform over time, or did it change over the period? Could the manner of reaction of countries to imbalances of payments be explained, or predicted, by some general attributes of countries? Are there consistent differences between the manners of response to balance-of-payments surpluses and deficits? If demand policy is used for balance-of-payments adjustment, are the manner of its use and the instruments employed uniform among different countries? If demand policy is not responsive to the balance of payments, can this be attributed to the appropriation of the policy for the achievement of other economic targets which governments regard as having priority over balance-of-payments equilibrium? And, finally, do the policy patterns in the leading trading nations, as they appear in this study, tend to contribute to the maintenance of a stable international monetary system or to its deterioration?

Demand policy comprehends, in this study, the major instruments of monetary and fiscal policy deemed to affect the economy through

changes in aggregate demand and to be fairly widely distributed over the economy rather than narrowly concentrated in special segments. Needless to say, instruments of demand policy are not the only tools available for balance-of-payments adjustment. The most obvious other tool is exchange-rate policy. This is not taken into account in the present study for the simple reason that it was very little used during the period and in the group of countries covered in this study. This study is thus confined to adjustment policies under a regime of fixed exchange rates.

But beyond exchange-rate and aggregate-demand policies, there is, of course, a whole array of policies which may be, and have often been, used for balance-of-payments adjustment: customs duties and export subsidies; quantitative restrictions of imports and of other international transactions; special measures of taxation; price controls and "incomes policy"—these are some of the most obvious. The exclusion of such policies is due to one overriding principle which guides the present exploration: the study seeks to reveal and compare patterns in the use of policies which are commonly found in the various countries, and which may be inferred from quantitative data rather than from some qualitative evidence. Instruments which are not part of aggregate-demand policy do not usually qualify by these criteria. They are, very often, used sporadically rather than regularly, and in only the minority of countries, so that no meaningful "pattern" of use may be looked for. Sometimes, even when such instruments are in regular use, their measurement faces overwhelming practical obstacles —this being true, for instance, of the level of customs duties. In other cases, such as price controls and incomes policies, no quantitative evidence may be expected at all.

It is believed—although this is certainly an impression rather than an inference from solid evidence—that insofar as any policies were followed for the purpose of balance-of-payments adjustment, instruments of demand policy were normally a major part of such set of policies; this probably holds true for most countries covered in this study and for most instances of imbalances of payments. Moreover, measures other than aggregate-demand policy or changes in the exchange rate may be of temporary help in containing balance-of-payments pressures. But they are unlikely to contribute to longer-term external equilibrium in the sense in which this term is usually understood, and are therefore of much less interest in a study of the present

nature.[1] It should thus be emphasized that this study does not purport to provide a full description or analysis of balance-of-payments adjustment policies. Not only does it exclude all policy instruments which are not part of aggregate policy, it provides no description of actual developments, as they occurred, for the policies which are explored. In other words, this is neither a catalog nor a chronological description of policies undertaken in periods of imbalance of payments. It is a search for some general outlines, or patterns, of the use of policies —a search which inevitably abstracts from individual properties. The studies of individual countries in this volume should be understood in this way, since they claim no more; one should not—and this, again, cannot be overemphasized—seek in these country studies a proper description or analysis of the ways in which each of these countries tried to solve its imbalances of payments.

Moreover, even though the study seeks to base its inferences on quantitative data, the inferences themselves are qualitative rather than quantitative. In other words, the study will ask whether demand policy as a whole, or certain of its instruments, were or were not used for balance-of-payments adjustment. But, if a policy instrument is found to move in response to the balance-of-payments position, the *size* of this movement will not be investigated. Still less does the study attempt to measure the effect of policy on the balance of payments. When, for instance, a country is found to have generally conducted its demand policy in a way which indicates responsiveness to the needs of the balance of payments, this finding does not necessarily imply that the country did indeed handle well its imbalances and induced full and quick adjustments.

This is, then, a study which seeks to find the "rules of the game" of demand policy in relation to the balance of payments, but not to photograph the game, nor even to describe its major moves.

2. Coverage of the Study: Countries and Period

The criterion used in the selection of countries for observation is dictated by the purposes of the over-all study. They must be large coun-

[1] To use the terminology recommended by Machlup, the study covers, by and large, the instruments used for "real adjustment," to the exclusion of instruments used for "compensatory corrections." See Fritz Machlup, "Adjustment in

tries in terms of size of international transactions: if implications for the international monetary system as a whole are to be drawn, it is obviously more relevant to concentrate on countries whose impact on this system is large.

Since the study is defined beforehand as an investigation of policy patterns under fixed exchange rates, Canada is excluded. Canada had a fluctuating rate during most of the period covered; this deviation makes the case of Canada—interesting as it is in its own right—less useful as a subject of international comparisons and a study of international policy patterns. The study thus covers the other nine countries of the "Group of Ten": Belgium, France, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom, and the United States. These countries conduct, in their aggregate, an overwhelming share of world trade and other international transactions, own an overwhelming share of the world's capital, hold most of the world's international liquidity, and produce most of the world's income. Conclusions which are valid for these countries as an aggregate are thus applicable, by and large, to the international monetary system as a whole.

The period selected is that following World War II. The experience of earlier periods is not entirely irrelevant, but is of less immediate application to current issues and to problems which are likely to be faced in the near future.[2] The early postwar years 1945–49 are excluded, too, on similar grounds. Circumstances in those years were definitely unique; although one cannot safely predict that they may not recur, it seems quite evident that such repetition is not likely in the near future, so that any conclusions derived from the experience of those years are bound to be less important to current economic problems. The study thus starts with 1950 and ends with the latest date for which information was available at the time of its collection, usually the end of 1966.

International Payments," in Baldwin *et al., Trade, Growth and the Balance of Payments* (Essays in Honor of Gottfried Haberler), Amsterdam, 1965, pp. 185–213.

[2] The experience of earlier periods has been investigated in two well-known studies whose methods are similar in essence to the one adopted here, although confined primarily to observations of a single policy variable. The interwar period was the topic of Ragnar Nurkse's classic study, *International Currency Experience,* Montreal, 1944, where this method of investigation was followed in Chapter IV. The prewar period was studied in Arthur I. Bloomfield, *Monetary Policy under the Gold Standard: 1880–1914,* New York, 1959, particularly Chapter V. These studies will be referred to later.

3. The General Approach

As indicated above, this study will seek to establish probable relationships between the position of the balance of payments and the policies undertaken: it will try to reveal the principles followed by studying actual behavior. The analysis will be of a statistical nature.

It should be emphasized that the analysis is confined to the search for causal associations in one direction: changes in the target variable are the cause, and changes in policy variables are the effect. When a consistent relation between imbalances of payments and the movement of a policy variable is established, this relationship will be tentatively interpreted as causal in nature. That is, if a policy instrument reacts consistently to imbalances of payments by moving in a certain direction, it will be assumed that this is not a coincidence but that the reaction is causally related to the imbalance and is, therefore, conscious behavior on the part of policy designers. An attempt will usually be made, in such a case, to give a plausible explanation for their conduct; that is, to see what model, or analytical structure, could be expected to yield this pattern of action. The models could, of course, be different for different countries and, in each country, for different periods or different governments. The study will thus not try to impose one model upon all situations; nor will it try to assess the theoretical credibility of any model which may be revealed. The purpose will be to establish what policy makers may have wished and anticipated, rather than to evaluate whether their actions were well-founded.

More generally, this study does not aim to pass judgment on the actions of the governments of the countries under investigation—either on the targets they have been pursuing or on the means selected to achieve them. True, in some final analysis such a judgment must be made. Studying past experience in order to improve future performance necessarily implies pointing out favorable and beneficial patterns of behavior and setting them apart from those which lead away from desired goals. The present study, however, is viewed only as a necessary preliminary step in such an assessment; it is concerned only with the attempt to find out what the policy patterns actually were, rather than with the subsequent question of which of these policies were "good," or "bad"—and why. This definition of the subject matter of the study

probably cannot be overemphasized, particularly because the analytical method may lead the unwary reader in the opposite direction. The constant attempt to search for a positive relation between the balance-of-payments position and policy actions may easily create the impression that the existence of such a relation is regarded favorably, while the lack of it is scored. No such normative judgment is intended in the present study.

The study's emphasis throughout will be on the relation between policy instruments and the balance of payments. In addition, however, a few other major economic targets will be observed. This will serve two functions. One is to make certain that a consistent association between imbalances of payments and a certain policy variable could not be attributed to the impact of another target variable. To cite an obvious example: If the balance-of-payments surplus is positively correlated with the rate of unemployment, measures taken to relieve either unemployment or excess demand for labor, when investigated in isolation, would be erroneously interpreted as being intended for the sake of balance-of-payments equilibrium. The other purpose of observing competing target variables is to find out whether the absence of a consistent relation between imbalances of payments and a given policy instrument could be due to the employment of this policy instrument in the service of an alternative target.

It should be understood, however, that these are only auxiliary observations, not on a par—in the present study—with the direct investigation of the relation between policy instruments and the balance of payments. In other words, this study is not a general investigation of trade-offs among targets or of the over-all allocation of policy instruments. It is designed specifically to observe reactions to imbalances of payments; other policy targets are admitted only as a means of ascertaining, and possibly explaining, the existence of certain reactions or their absence.

4. The Analytical Method

The study's stated purpose is to reveal patterns of reactions to imbalances of payments. But care must be taken, it must be stressed again, lest reactions to movements of *other* policy targets mistakenly be considered as having been taken in response to the balance-of-

payments position. This problem of separating out responses to one policy target from responses to others would seem to call for a multiple (or partial) regression analysis where a policy instrument is the dependent variable and policy targets—including the balance-of-payments position—the independent variables. For a number of reasons, this method has not been adopted in the present study; it has been experimented with, to some extent, and the results of these experimentations (which are presented in the appendix) are not very encouraging.

The basic information on which the analysis will rest consists of quarterly data (adjusted for seasonal variations, where these are found). But the study of interrelations among variables *within* each quarter could hardly be of great significance. The quarter is an arbitrary dissection of the continuum of time. Changes in policy variables could easily be due to movements of the policy targets in the previous quarter, or in still earlier periods. If these movements should change direction often from one quarter to another, observations of relationships would be very likely to yield misleading results. In recent years, a few attempts have been made to construct a "reaction function" for various policy instruments by regression analysis which uses forms of distributed lags to take account of this problem.[3] Such a procedure would, in this instance, have had a number of drawbacks. First, it would have required, for each separate country, an extremely large amount of experimentation.[4] Second, no logical rational model of distributed lags, uniform to all countries, seems to suggest itself. Thus, although it is conceivable that a large enough number of experiments

[3] See G. L. Reuber, "The Objectives of Canadian Monetary Policy, 1949–61: Empirical 'Trade-offs' and the Reaction Function of the Authorities," Journal of Political Economy, April 1964, pp. 109–32; and William G. Dewald and Harry G. Johnson, "An Objective Analysis of the Objectives of American Monetary Policy, 1952–61," in Deane Carson (ed.), *Banking and Monetary Studies*, Homewood, Ill., 1963, pp. 171–89. A study devoted specifically to the length of the time lags which are involved in policy reactions (as well as the lags between the taking of policy measures and their impact upon the economy) is Albert Ando, E. Cary Brown, Robert M. Solow, and John Kareken, "Lags in Fiscal and Monetary Policy," in Commission on Money and Credit, *Stabilization Policies*, Englewood Cliffs, N.J., 1963, pp. 1–163. Interesting information about the time lags in policy reactions is contained in another recent study, reflecting opinions about policy processes in approximately the same countries which are investigated in the present study. See E. S. Kirschen *et al., Economic Policy in Our Time*, Amsterdam, 1964, particularly Tables X.2 to X.5, pp. 274–76.

[4] It should be mentioned that, as is shown in the appendix, the introduction of a few simple assumptions of lags has not improved the outcome of the regression analysis.

with a variety of models in each country would finally reveal a model which yields high correlation coefficients, the meaning and validity of such findings would be subject to much doubt.

A regression analysis of this type would be subject, furthermore, to a large impact of extreme values of both the dependent and independent variables—an impact which could easily distort the implications substantially (and probably has done so in the regression analysis presented in the Appendix). Again, removal of extreme observations could probably improve the results, but this would be a rather arbitrary procedure.

A formal regression analysis would have made sense conceptually, if it could be assumed that governments indeed had some quantitative "reaction function" in mind. While this is not inconceivable, it does not seem to be usually probable; it is likely that large gaps in the achievement of various targets lead to strong reactions of governments, but that there is no precise, or even approximate, quantitative relationship. Be that as it may, it should be recalled that the purpose of the present study is to establish qualitative rather than quantitative associations—it looks for directions of movements rather than for their sizes.

Moreover, while the study seeks to avoid the attribution of spurious associations (of policy variables with the balance-of-payments position), it does not intend to separate completely the variable of the balance-of-payments position from all other target variables. A partial regression coefficient of, say, the discount rate and the balance-of-payments position, would show the extent to which the discount rate would move in response to a balance-of-payments movement on the assumption that other economic targets remain unchanged. But this response would be quite obvious; if other targets are separated out, the discount rate would move, assuming that the government behaves rationally, in the direction which balance-of-payments-adjustment calls for. The partial regression coefficients derived in this manner may be used to infer some "rates of transformation" among the various economic targets. But for a study like the present one, which seeks to establish patterns of reaction of policy instruments to balance-of-payments movements—in the world *as it is,* where all other economic targets are always taken into consideration—this is not the appropriate procedure.

Finally, aggregative regression and correlation coefficients would not suffice to answer some of the important questions posed in this study, which require a separation into classes of observations. They would

not be appropriate, for instance, for the purpose of examining the possibility of changes in policy patterns over time; or of searching for differences between responses to balance-of-payments surpluses and to deficits.

For all these reasons, the procedure of regression analysis has been abandoned here. Instead, certain other analytical methods have been adopted.

First, as a device for suggesting hypotheses about policy reactions, subperiods of imbalances of payments are distinguished. The unit of observation for a study of policy responses to imbalances of payments is the time during which the balance of payments is continuously in deficit, or continuously in surplus. The term "continuously" should be interpreted in a liberal way: a divergence in the direction of movement which occurs for a rather short time should not be regarded as starting a new period, but as a random discrepancy which may be disregarded. Needless to say, any such dissection of time into subperiods involves some element of arbitrariness in determining precisely the points at which each subperiod starts and terminates, but this element will most often be rather slight. This issue will be discussed further in Section 6 of this chapter.

The statistical investigation starts, then, with the observation of relations among movements of policy and target indicators within each period. Had these periods been of very short duration, this procedure would hardly have been justified, for the same reasons that apply to observations of individual quarters: the movement of policy variables in any period is as likely to be a reaction to movements of target variables in earlier periods as to developments of the current one. Usually, however, the units of observation are considerably longer. Periods defined in the way suggested here normally last from two quarters to a number of years.

It may be assumed that, when periods are of that length, policies within each period are normally a reaction to developments within the period rather than earlier. If this asumption is valid, an observation of concurrent changes in target and instrument variables would, indeed, reveal causal effects of target changes on policies. It must be recognized, however, that this is an assumption which, while probably reasonable, is supported more by casual observations, statements of policy makers, and general beliefs than by any firm analysis. Moreover, the procedure adopted here would be justified only if it could be assumed that policy measures do not have an immediate impact on the

target great enough to reverse the direction of change which originally gave rise to the policy action: if this is not so, associations of changes in target and policy variables are more likely to reveal the effects of policies on targets than those of targets on policies. In other words, this procedure requires that the "inside lag" (or "recognition lag") be materially shorter than the "outside lag." There can, of course, be no assurance that this assumption is generally valid; and it must be recognized that, whenever it does not hold true, the outcome of the present procedure may be doubtful. A few specific instances where the method used may be suspected, on this score, to yield unreliable inferences, will be noted. A somewhat similar related problem will be discussed later in this chapter.[5]

[5] The time-lag problem is touched upon in the aforementioned studies of Nurkse and Bloomfield. Both used annual data (and the year as a unit of observation) to analyze the relation between two variables. Nurkse stated: "Our observations relate to yearly intervals. It is possible that domestic assets may be adjusted in the same direction as changes in international assets, not immediately, but with a lag of more than a year, in which case the year-to-year figures might conceal a process of adjustment taking place on the traditional lines. A lag in the process of adjustment is, after all, natural. Suppose an expansion of domestic credit gets under way in some country; the central bank's domestic assets increase, while its international reserve is likely to fall, thus 'offsetting' part at least of the rise in domestic assets. It may be only after some time—say two or three years—that the central bank is 'pulled up short' by the fall in its international reserve and that it may feel obliged to start contracting its domestic assets; and this contraction, again, may go on for two or three years and is likely to be accompanied by a return flow of gold and exchange reserves. In both the expansion and the contraction phase, domestic and international assets may thus move in opposite directions from year to year, and yet the 'rules of the game' may operate, albeit with a lag." (Nurkse, *op. cit.*, pp. 68–70.)

Similarly, Bloomfield said: "The period of a year that is the basis of our comparison is essentially an arbitrary one that may conceivably conceal the fact that domestic assets did move more frequently in the same direction with international assets than in the opposite direction, but with a lag of more than one year." (Bloomfield, *op. cit.*, p. 50.)

Nurkse and Bloomfield were worried by the possibility that central banks reacted with a lag of a few years. From all available evidence, this does not seem to be a matter of grave concern. Normally, central banks would probably react within a fairly short time—certainly, it could be expected, less than a year. If they do not, this would be an indication not of a slow machinery of response but of an intentional policy, which should by no means be described as following some "rules" with a time lag. Nurkse himself appears to suggest as much in the sentence just following the passage quoted above: "It is not always easy to draw the line between such delayed adjustment and deliberate neutralization with a view to avoiding adjustment." (Nurkse, *op. cit.*, p. 70.)

A much more important reason for the inadequacy of annual data would seem to me to be that a period as long as a whole year is likely to contain move-

Where balance-of-payments developments follow a pattern approximating cyclical movements, this method of establishing relationships among variables will be complemented by the reference-cycle analysis developed for the study of business cycles.[6] In this case, the turning points in the balance of payments will serve as the "reference dates." In principle, this method should yield essentially the same conclusions as that of observing subperiods of imbalances, since each such subperiod will be approximately—although not precisely—a phase of the reference cycle. This additional method of investigation may help in revealing the degree of consistency of each relationship. It may also uncover typical time lags between imbalances and reactions, when such typical lags exist.

Conclusions derived from these observations would, to repeat, be tentative. If an instrument (or policy) variable appears to move consistently in the direction required for balance-of-payments adjustment, it will be necessary to test whether this association may not be due to the consistent association of balance-of-payments fluctuations with the movements of another target variable, with which the changes of the instrument variable in question are genuinely associated. Also, when policy variables are seen not to move consistently with the balance of payments, or even to move consistently in a direction opposite to the requirements for balance-of-payments adjustment, this will require explanation. A few complementary methods of investigation will be used to deal with these problems. Thus, the possibility of an association of the movements of a policy variable with those of an alternative target variable will be examined by looking at the latter during periods

ments in opposite directions (in each variable) rather than a uniform movement, and the averaging of these movements must detract seriously from the validity of the investigation. Observations based on annual averages and on the year as a unit of investigation are thus likely to be of a limited significance. The only case in which this is less important is where the dominant movements took the form of rather long cycles, with a considerable number of years within each stretch of the cycle.

[6] Essentially, this is a method by which each "cycle" is first divided into two phases—the "trough to peak" and "peak to trough" (or the reverse order). In the graphic presentation, each phase is assigned the same horizontal distance (equal for the two phases, and for all cycles), and the various cycles are charted on the same graph, one below the other. Beside the upward and downward turning points, the position of the variable under investigation is shown also for three other points, equidistant in time, during each of the two phases. In this way, positions of the variable through the various stages of the cycle may easily be compared, and typical patterns of cyclical behavior of the variable be revealed. See Arthur F. Burns and Wesley C. Mitchell, *Measuring Business Cycles*, New York, NBER, 1947, particularly Chapter 2.

of a uniform movement of the former. This may also be done through the reference-cycle analysis in two ways: first, by taking as reference dates the turning points in the movements of the policy *instrument* and examining movements of alternative target variables during these cycles; second, by determining reference dates according to turning points in the movement of a target variable and observing the movements of instrument variables along these cycles.

Isolating periods in which balance-of-payments equilibrium and alternative targets called for opposite policies would, of course, make it easier to distinguish reactions to imbalances of payments from responses to changes in other targets. Unfortunately, for this purpose (but not for policy makers!) the number of such episodes of clear conflict has been rather small in the countries and periods covered in this study. Although the small number of such cases prevents a formal separate investigation of these episodes, special attention will usually be given to them.

The combined use of all these methods should yield answers to the following questions: Which instruments of aggregate demand policy were used for balance-of-payments adjustment? Which were not, or were even manipulated in a way opposite to balance-of-payments requirements? Why were the latter not used for balance-of-payments purposes; that is, what other policy targets might have prevented the use of these instruments for balance-of-payments requirements? The analysis should also be able to show consistent differences in policy reactions among chronological periods in each country, or consistent differences—if they exist—between policy responses to balance-of-payments deficits and to balance-of-payments surpluses.

By the nature of the study, the relationships revealed cannot usually be completely and definitely established. Given that the unit of observation is a period of more or less monotonic movements, the number of observations in each country is necessarily small. Typically, it may not be more than ten or twelve and sometimes considerably less. The conventional methods of verifying the significance of apparent relationships would thus be of very little help in the present instance.[7] Statements of conclusions must, then, involve an element of judgment, and findings have to be treated as plausible implications of the evidence rather than as unchallengeable truths. But that is, in varying degree, the nature of any empirical proposition.

[7] This refers also to the test of "indexes of conformity," which is used in cyclical analysis. See the warning, *ibid.*, pp. 183–85.

5. Policy Instruments and Adjustment Policies

The selection of policy instruments, or variables, for observation will depend on the circumstances of each country. Differences in structure, law, and tradition lead to the use of different instruments in different countries. Here, statements of other analysts and of policy makers may be helpful as guidelines for experimentation. If, for instance, the magnitude of "secondary liquidity" is claimed to be of concern to the central bank of a certain country, this magnitude may be investigated in the study of that country; in another country this variable may be ignored, but the yield of government debt instruments studied; and so on. The discussion of individual countries will be preceded in each case by a section indicating, on the basis of prior information, what the major instruments used in the country are and the specific attributes of each instrument in that country, where this seems necessary for an understanding of the policy mechanism.

A few instruments are common to most of the countries under investigation. These include the following: the discount rate, reserve-ratio requirements, central-bank lending to the commercial banks, central-bank lending to the government, central-bank total domestic claims, commercial-bank lending to the public, the money supply, government revenues, government expenditures, and the government's budgetary balance. Most of these variables require no comment, but some need a few words of explanation.

Central-Bank Lending to the Government.[8] This magnitude is calculated on a *net* basis—that is, it represents the size of the net indebtedness (either positive or negative) of the government to the central bank and is derived by subtracting government deposits at the central bank from its borrowing from the bank: central-bank credit to the government increases the amount of liquidity in the economy only when it is net lending.

Central-Bank Total Domestic Claims. Changes in this variable are usually primarily a combination of changes in three other variables which are recorded separately: central-bank lending to the commercial

[8] When used in a general way, the term "government" will refer, in this study, to all official policy-making agencies; specifically, it will include the central bank. But in discussions of the central bank vs. the "government," the latter should obviously be interpreted as excluding the monetary authorities.

banks, central-bank lending to the government, and open-market operations. Sometimes they may also reflect other components, such as central-bank lending to the public (other than commercial banks). For reasons indicated above, central-bank lending to the government appears in this total on a *net* basis. The "total" of domestic claims is thus a hybrid in which some components are gross while one is net.

The Government's Revenues, Expenditures, and Budgetary Balance. In the fiscal sphere, the major policy tool which one might expect to be employed for balance-of-payments adjustment is probably the over-all (surplus or deficit) balance of the budget. This may best be discussed in terms of the government's "excess demand" for goods and services.[9] An increase in the government's excess demand—whether an increase in a deficit, a reduction of a surplus, or a shift from a surplus to a deficit—is a contribution to the economy's aggregate demand, and thus an expansionary measure; and a reduction of excess demand is the opposite. The investigation will thus examine not the position of the government's balance (i.e., whether it is a surplus or a deficit) but the *direction of change* in the balance from one period to the other. It may also be interesting to look separately at changes in government revenues and in government expenditures. If the government does manipulate its excess demand in reaction to balance-of-payments fluctuations, this distinction may show whether it is mainly revenues which are changed or expenditures, or possibly the two in opposite directions or in different proportions.

In examining policy reactions to imbalances of payments, a judgment must be made as to whether a given change in a policy variable is "adjusting" or "disadjusting"—that is, whether it tends to relieve or to aggravate the imbalance. This judgment has to be made on two different levels.

First, it may be asked whether the change in the policy variable, *in and by itself,* has an impact in an adjusting direction: if it does, it will be termed "adjusting." Thus, when there is a downward imbalance any change which tends to reduce aggregate demand or to lower prices is an "adjusting" change. This would include an increase of the dis-

[9] The "excess demand" is the excess of the government's expenditures on goods and services over those of its revenues which reduce the public's disposable income. In effect, the expenditures include very often loans to other organizations (whether private or nationalized), the case for whose inclusion as an element in the government's "excess demand" is not clear. Also, the data actually used refer to cash budgets, while the use of accrual budgets—had they been available—might be held to be more appropriate.

count rate, an increase of minimum-reserve ratios, a decline of central- or commercial-bank credit, and so on. To call such a change "adjusting" does not necessarily imply that the entire process of which this change is a part will have an adjusting effect. For instance, the discount rate may be raised, but demand for commercial-bank credit may increase, too, swelling credit volume and thus augmenting the balance-of-payments deficits. Without the change in the discount rate, however, the deterioration would have been even stronger, and this is therefore an "adjusting" change in the discount rate.

Second, the pattern of behavior of the whole array of instruments combined must be evaluated. Within this framework, what was termed an "adjusting" change before may not be so, and vice versa. In other words, when the over-all pattern is examined, attention is focused on the magnitude of some crucial variable. If this variable changes in an adjusting direction, the policy pattern as a whole is adjusting. A change in another variable which was found to be "disadjusting" when examined in isolation may still be consistent with the adjusting change in the crucial variable. To cite a simple example: Suppose the crucial variable is deemed to be money supply; this variable could change in an adjusting direction, even though credit supply—which is only one of the factors which create money—changes in a disadjusting direction. The disadjusting movement of credit supply, *when judged by itself,* may then still be consistent with an adjusting shift in over-all monetary policy. Judging the pattern as a whole would thus require focusing attention on the crucial variable or variables. This, indeed, whether explicitly or implicitly, has always been the way adjustment policies have been analyzed.

The investigation of each individual country will thus consist of a discussion on two levels. First, each policy variable will be examined separately to see if, by itself, it reveals any consistent behavior, either adjusting or the opposite. Then, by way of summary and interpretation, the observations of individual instruments will be combined to see whether they imply a typical pattern of reactions, and whether this pattern may be expected, in accordance with any reasonable model, to be of an adjusting nature.

It is important to note that judgments about the behavior of policy variables—that is, whether they do or do not respond in an adjusting manner to balance-of-payments fluctuations—are based on observations of actual sizes of these variables. This attribute of the study has a few pertinent implications—or, to some extent, drawbacks.

First, no distinction is made, in the analysis of each policy variable, between discretionary policy actions and automatic responses. A simple (and important) example may be mentioned. If money supply rises with balance-of-payments surpluses, and falls with deficits, money supply wil be designated as a variable which moves in an adjusting manner—although it is quite possible that these movements in money supply are due solely to the automatic impact of changes of the country's external balances. The absence of a distinction between the two types of responses is due to two considerations. One is pragmatic: it would usually be very difficult—and sometimes downright impossible —to separate automatic from discretionary policy reactions. Secondly, apart from this consideration, it may be assumed that governments could usually counteract automatic impacts; if they do not, these impacts may be judged to have been deemed desirable, even though they were not initiated by the government. Also, if the automatic impact is offset—partly or fully—by the government, and only the offsetting policy measures (which are, of course, discretionary) are taken into account, inferences about policy patterns would certainly be misleading. In the evaluation and interpretation of the whole pattern, as distinguished from the observations of individual policy variables, an attempt will usually be made in this study to point out relations between policy actions that appear to be automatic and those that appear to be discretionary.

Another drawback which must be acknowledged is that, *ex post,* realized movements of each policy variable may often differ from the *ex ante* changes—the realized movement is not necessarily identical with that intended by the policy maker. This difficulty certainly increases in importance with the complexity of the process by which the policy variable in question is brought into play.

Monetary variables differ as to the directness with which they can be manipulated by the monetary authority. On the one hand, such variables include instruments that are controlled directly and precisely by the authority, like the discount rate, minimum-reserve requirements, or open-market operations. On the other hand, they include a variable such as money supply, which is affected by the monetary authority only through a complex and long drawn-out chain of changes, not all of which are immediately taken into account. In between are variables such as components of the central bank's assets, or the supply of credit, which are at various stages of remove from the direct action of the monetary authority. It may be debated at what stage a variable is too

little affected to be an "instrument" in monetary policy.[10] The advantage of examining variables at different levels, as in the present study, is that it makes possible an analysis, as has been explained earlier in this chapter, which is not tied in advance to the investigation of one specific model.

This problem may be even more relevant for budgetary policies: the identification of realized, *ex post* magnitudes with *ex ante* policies might well be questioned. Thus, a realized reduction in the government's excess demand is treated in this investigation as a contractive policy, and a realized increase as an expansionary policy. It may be argued that this is a particularly dubious procedure in the fiscal sphere; that when, for instance, the government undertakes an expansionary policy—say, by reducing tax rates without changing expenditures—the ensuing expansion may lead to a budgetary surplus through its effect on

[10] Challenged by a similar problem of determining what could be instruments of monetary policy, Karaken and Solow stopped somewhat earlier on this road. They argue: "It is not true, except in some irrelevant long-run sense, to say that the Federal Reserve controls either M [money supply] or its rate of change. What the Federal Reserve can do is buy and sell in the open market, set reserve requirements, and set the discount rate. A little less directly . . . we may say that the authorities control the effective primary reserves of the commercial banks . . . and at one further remove we may say that the measure of monetary policy is the power of the banking system to carry earning assets. This is what the monetary authorities do. They do not move a pointer on a dial marked M or even ΔM." (John Karaken and Robert M. Solow, "Lags in Monetary Policy," Part I of "Lags in Fiscal and Monetary Policy," Stabilization Policies, pp. 17–18).

Later, however, the authors state: "Why stop, though, with the assumptions (or attributions of knowledge) so far suggested? Why stop, that is, with Max E [maximum earning assets of commercial banks] as the instrument variable? Why not continue making assumptions until the ultimate policy variables, the price level, the rate of unemployment, etc., emerge as the instrument variables of the Federal Reserve? Above it was suggested that the System can be regarded as knowing how the direct determinants of total member bank reserves are themselves determined, and as being able to predict future values of the arguments of these functions which it does not set. But then why not assume in addition that the System knows member banks' demand for excess reserves, in which case it can be regarded as setting actual as well as maximum earning assets. And with a few more assumptions, the System can be regarded as setting the price level.

"Evidently, there is no basis in logic for stopping at one point rather than another—for making certain assumptions rather than others. . . ." (*Ibid.*, p. 81.)

Indeed, with no basis in logic, the definition of instruments or the "assumptions" we make may change from time to time and from one country to another. As stated in the text, an advantage of always considering instruments on various "levels" is that it imposes fewer restrictions, by an investigator, on the assumed mode of behavior of the policy maker.

the amount of tax revenues. Identifying a budgetary surplus with a contractive policy would be entirely misleading in this instance.

Such a contradiction between intended and realized budgetary balance—due merely to induced changes rather than to autonomous changes in exogenous variables—would not be possible under the "textbook" assumptions of multiplier analysis. Specifically, it would not be possible when *ex ante* investment is held constant, or even assumed to be a function of income. Under different assumptions, however, this contradiction is conceivable. It could be produced, for instance, by an "acceleration principle," or by assuming investment to be a function of *tax rates,* either in general or for certain corporate tax rates.

Ideally, the anticipated budgetary balance should have been used rather than the realized balance. However, this cannot be achieved in practice. At best, estimates of this magnitude are available for a fiscal year as a whole; even then, they do not necessarily reflect fully the anticipations of policy makers. Estimates of planned budgets would be of only little use for the purpose of this study. It is hoped that the adoption of budgetary performance as a substitute for expected budgetary magnitudes will not bias the results seriously. This hope may be justified when the periods of observation are not unduly long—say, not more than a year or a year and a half. Within short periods, changes induced by measures taken during the period may be expected to be slight in comparison with the primary changes. Thus, the danger that realized magnitudes will give indications contrary to the intent of policies is probably small when the period is short. When partial, circumstantial evidence on the government's intentions is available, this information will be introduced.

Unlike the monetary area, the study of fiscal policy is confined here to the "ultimate" variables. It considers the government's over-all balance in its budget; at the level immediately below this, it observes the two components of the budget—revenues and expenditures. But there it stops. It does not analyze the means by which each of these components is, in turn, affected—means which could well be considered policy variables in their own right. This treatment of the fiscal area results from the practical limitations of the investigation. It is easy to tell how the discount rate or the minimum-reserve ratio was changed during a given period. It would be immensely more difficult to say how the "tax rate" changed. This "tax rate" is some weighted average of a myriad of individual tax rates, many of which may move in opposite

directions in a given period and certainly in different proportions. Even the study of entire categories of these rates, e.g., excise duties or income taxes, would be extremely complicated. A component such as the personal income tax would in itself raise serious problems: it is a whole structure not all parts of which always move in the same direction. In a study of the present scope, any attempt to observe such "partial" variables in a systematic manner must be abandoned.

Another, somewhat related, aspect of the method of investigation followed here is that it disregards the extent of change in policy variables which might have been anticipated in the absence of policy actions. This may again be illustrated by an example. Suppose the government's excess demand rises at a time of balance-of-payments deficits. This will be considered a movement in a disadjusting direction. Actually, it might well have been that the government's excess demand would have risen even more during the period under consideration, due to exogenous factors, and that, because of the balance-of-payments position, the government took steps to reduce its excess demand—a response in an adjusting direction. But this would not be revealed by the observed values of the variables and would therefore be disregarded. This is certainly a drawback of the method. But it could not be feasibly overcome, except in a small number of instances.

A difficulty of a different nature involved in the present study's method of evaluation is concerned with the distinction—and possible contradiction—between *levels* and *changes*. Once more, an example may be helpful. Suppose that during a period of balance-of-payments deficits, the discount rate is not raised but remains at a high level (in comparison with some "normal" level). It is not always possible to decide clearly whether this is or is not an adjusting response of the policy variable to the balance-of-payments position. Most often, the study will compare *movements* of the policy variable and the balance of payments; but sometimes the *level* of the policy variable will be taken into consideration—in a manner which must be, admittedly, of an arbitrary nature.

In concluding this section, it should be noted that most of the drawbacks involved in the method of observing movements of policy variables are probably more important in relation to budgetary than in relation to monetary variables. Hence, the inferences of the study about patterns of response of budgetary policies should be regarded as particularly tentative.

6. Determination of Imbalances of Payments

Since the purpose of the study is to identify and examine the policy reactions of governments to imbalances of payments, the variables which would be required, ideally, to indicate imbalances are those which serve this purpose in the decision-making process of the government concerned. The lack, however, of direct information about these "ideal" variables makes it necessary to substitute the researcher's judgment for that of the government concerned and to experiment with alternative variables. Since circumstances vary from one country to another, there should be no attempt to determine a single exclusive principle for identifying imbalances in all the countries studied. Where no particular special circumstances are apparent, however, it would be a good rule to stick as closely as possible to commonly accepted principles of identifying imbalances, since these are likely to be adhered to by the government concerned. It should be obvious from these remarks that it may be necessary to experiment with more than one definition or principle, even in the case of a single country.

The variable which appears to be the simplest, most easily observed, and most frequently available, is the country's external reserves. An increase of these reserves would indicate an "upward imbalance," or surplus; while a decrease would be a "downward imbalance," or deficit. The category selected to represent this variable is that of gross official reserves. The definition of this series usually includes holdings of gold and foreign exchange by the central bank or government plus the country's net position in the International Monetary Fund.

Holdings of foreign exchange by commercial banks, on the other hand, are probably not usually counted by governments as part of reserves for the purpose at hand. Before the era of convertibility, banks in most countries were ordinarily allowed to hold abroad only necessary working balances. In later years, commercial banks have presumably been guided by their own initiative and considerations in determining the amount of their foreign-exchange holdings. They do not act as agents of the central authorities, and their foreign assets and liabilities, and changes in them, are presumably disregarded in the government's identification of imbalances of payments.[11] Yet when commercial bank

[11] This approach is similar to that taken for the United States by the Bernstein Committee. See Report of the Review Committee, *Balance of Payments Statistics*

holdings are substantial, it may be worthwhile to experiment with including them in the country's reserves for the purpose of determining episodes of imbalances of payments. In the countries covered by the present report, this inclusion seemed, usually, to affect the analysis very little.

Another series experimented with is balance-of-payments surpluses and deficits, as defined by the Balance-of-Payments Division of the International Monetary Fund.[12] It covers the period from 1958 onward and uses the "official settlements" concept: "A surplus or deficit is defined as the balance of all transactions other than 'official settlements' (i.e., excluding changes in official gold and foreign-exchange assets, in net IMF positions, and in liabilities to foreign monetary authorities, and adjusted for advance repayments of foreign debt by governments). The over-all surplus or deficit so defined is equal to the basic balance, unrecorded transactions, and all movements of short-term capital, excluding only those that constitute official settlements." [13] This definition thus includes not only changes in a country's reserves but also changes in its liabilities to foreign monetary authorities and advance repayments of foreign debt by governments. The two series usually demonstrate a very high degree of agreement in direction of imbalances, and most often also in their intensity, during the period covered by the two (that is, from 1958 onward).

In some cases, it may be advisable to experiment with still other variables. For instance, a government may be concerned only with an imbalance on current account, disregarding movements on capital account. If this is thought to be the target, representation of imbalances by deficits or surpluses on current account may be rewarding.

Still another variable which may have to be taken into account is the *level* of reserves. A situation may occur where the government wishes to see a change in reserves—an accumulation or, probably much less often, a reduction. The government would then be concerned not with any change in reserves but with any discrepancy between the desired level of reserves and their actual level (or, in other words, a change not commensurate with the change desired by the government). The determination of a "desired level" is, of course, not an easy task. When the level of reserves has been constant over an extended period,

of the United States: A Review and Appraisal, Washington, D.C., 1965, Chapter 9.

[12] This information was kindly provided by the Division.

[13] International Monetary Fund, *1965 Annual Report,* p. 66.

it may be legitimate to assume that a shortfall of reserves below this level could be considered a downward imbalance even when reserves are rising (from a particularly low level), and vice versa. When reserves demonstrate a long-term movement, some form of determining their trend would be required, and the assumption that the "trend level" is the desired one may be attempted.

Most of the experiments that could be made are not usually required. Two guidelines help to indicate the need for experimentation: first, an explicit statement of policy makers, or of economic analysts, that a certain variable is used to measure balance-of-payments disturbances—in which case the variable in question would merit an investigation; second, a lack of definite conclusions when the simple variable of external reserve holdings is analyzed.

The problem arising from the substitution of *ex post* for *ex ante* magnitudes, which has been pointed out in the discussion of policy variables, is just as relevant to the definition of targets in general and to the specific target of balance-of-payments equilibrium. The study investigates relations among *realized* movements of variables. *Anticipations,* on the other hand, are entirely absent from this examination. In the government's "reaction function," manipulations of policy variables will in effect be related to the present stock and the anticipated future flow of each magnitude that represents a target variable. Past flows enter into the function only as a factor which affects these two. The statistical investigations can, in principle, take account of present stocks; this will indeed be done, as has been mentioned: the level of external reserves will be introduced whenever it seems to be a promising addition to the analysis. Anticipations, on the other hand, are replaced by the statistically observable flows which, in relation to each point of time in which a policy measure is undertaken, have either taken place in the past or will have been realized in effect in the future. This is certainly not a perfect substitute, but it is probably the best available. A conceivable alternative would be to construct each government's "anticipation function," and derive from it anticipated values for the target variables. This procedure might possibly be attempted, but it is certainly not feasible in this study.

Some qualification is now needed with response to the statement made at the beginning of this section that imbalances would ideally be measured in the same way as the respective government measures it. A government may be indifferent to the so-called imbalance, or may

even welcome it. The double meaning of the term "imbalance" should therefore be clarified. As used in this study, "imbalance" does not necessarily indicate that the government so regarded the development in question. The attempt to achieve a certain level of reserves, which has just been mentioned, is an important illustration of this point. If a level of reserves higher than the existing one is considered a target, then not an accumulation of reserves but its absence would be regarded, by the government, as an "imbalance." It should therefore be emphasized that the use of this term does not necessarily imply an expression of the government's view; on the contrary, one of the outcomes of the study could be to identify what the government actually considered an imbalance by examining the government's policies. Yet it is important to keep in mind that the study is intended to draw inferences for the international monetary system as a whole. For the latter, the accumulation of reserves by one country may be an "imbalance" even if it is not so regarded by that country. And it is therefore imperative to learn how that country reacted to such imbalances. It should also be noted that into an appraisal of the performance of the international system may enter considerations which could change materially conclusions drawn from the observation of individual countries. Thus, for instance, when a country which holds an unduly large proportion of the world's reserves fails to deflate in response to a loss of reserves, this absence of "adjustment" may in effect contribute to stability of the international system as a whole.

As stated earlier in this chapter, the analytical method employed here starts by determining subperiods of imbalance of payments, and a distinction is made among subperiods of "upward imbalance," "downward imbalance," and "stability." Since, however, more than one indication is used to identify imbalances, the question which naturally arises, and which merits at least a brief discussion, is how such subperiods are determined.

Conceivably, subperiods for each country could be defined in several alternative ways, depending on the variable used to indicate the balance-of-payments position. For the countries and period covered by this study, however, it is almost universally found that all indicators point in the same direction (needless to say, this applies to conventional indicators such as the level of reserves or the balance-of-payments deficit or surplus by one definition or another, but not to variables such as the rate of change of external reserves). Significant exceptions

to this rule, which are quite rare, are pointed out in the country studies. It has been decided, therefore, to use for each country just one set of subperiods of imbalances, rather than a few alternative sets which would have been very similar to each other.

The determination of starting and end points for each subperiod of upward imbalance, downward imbalance or stability is not always self-evident. Take, for instance, a period of a long upward movement interrupted, at some point, by a short downward movement. Should this be regarded as three subperiods (upward, downward, and again upward movements)? Or should the brief interruption be disregarded, and the whole period be classified as a single subperiod of upward imbalance? Particularly difficult is the determination of subperiods of "stability." Obviously, no single quarter exists, in any country in which a state of precise equilibrium of the country's external position could be found. Yet, it is also evident that quite often the imbalance, whether upward or downward, is so minor that it should be disregarded, and the external position be considered as one of "stability."

In determining subperiods, several factors enter into consideration, chiefly the following: (1) the length of the period of movements in a given direction; (2) the intensity of these movements; (3) the degree of agreement among the various indications of balance-of-payments position (external reserves, over-all balance of payments, and, sometimes, other series); and (4) the extent of deviation from past developments and trends. Subperiods could conceivably be determined by some statistical function, which would include all these factors, as well as perhaps a few others. Even casual observations would suggest that a predetermined function of this nature would often lead to absurd results. Instead, an element of arbitrariness and judgment has been introduced into the determination of turning points. A general rule (which has been disobeyed very rarely—mainly in the case of the United Kingdom), is that no subperiod may be shorter than half a year; movements of only a single quarter falling between opposite movements in the preceding and following quarters are disregarded. In general, little disagreement could probably arise in the determination of subperiods, and classifications found elsewhere (in other analyses or in statements of policy makers), roughly agree with those used in the present study. In a few instances, however, the demarcation is not self-evident or clear-cut, and judgment plays a more important role. In instances which look particularly difficult, the chronological determination of subperiods is discussed in some detail.

7. Other Policy Targets

Policy targets may be of various kinds and shades, and most of them could not be identified without intensive study. It would obviously not be feasible to try to secure information about all of these targets; and for the present purpose such an attempt would probably be unrewarding, even if it were feasible. As explained earlier, other target variables are introduced in this study partly to determine whether a policy pattern which appears to be a reaction to imbalances of payments can be explained instead by the movements of these other variables, and partly to examine the possibility that an absence of reaction to the balance-of-payments position might be explained by the appropriation of policy instruments for alternative targets. While the number of such explanations could be very large, it seems that the observation of a few major targets would go a considerable way toward satisfying the requirements of such an examination. These targets are maintenance of price stability, maintenance of full employment, and achievement of a high, steady rate of growth.

The observation of the first two targets is relatively simple. The indexes of consumer prices and of wholesale prices appear to be the most frequently used indicators of movements of the general price level. Usually, though not always, these two indexes will yield similar results, particularly when price movements are substantial. This is also true about measurements of unemployment. Although series such as registered unemployment and the number of unemployed projected from labor force surveys may differ significantly in absolute size, indicated directions and intensities of change are generally similar.

Statistical representation of the growth target is more complicated. This is, by its nature, a longer-term target. A measurement of developments during a given period will inevitably reveal the effect of (1) changes in the economy's productive resources and the productivity of these resources—which is, presumably, what the target of "growth" refers to—and (2) the rate of utilization of existing capacity, in which the rate of employment, considered as a separate target, is of crucial importance. The separation of actual performance into these components would clearly be beyond the scope of a study of this kind. The rate of growth will therefore have to be measured by some summary

indication of the current performance of the economy, despite the limitations just noted.

Conceptually, the best available yardstick for measuring the economy's over-all performance is probably the rate of increase of gross national product or net national product (the difference between the two rates will usually be slight). For a number of reasons, however, a measure conforming better to the purpose of this study is the rate of increase of industrial production. In the first place, it is usually available within a fairly short time, whereas gross national product estimates are available in most countries only with a considerable lag. It may thus be assumed that, for the purpose of determining their short-term policies, governments which have this measurement available at the relevant time regard it as indicating the growth rate. The government may justly feel that this use is not likely to be very misleading, since industrial production is itself a major component of the national product in the countries concerned. Even aside from the advantage of being readily accessible, industrial-production data often attract particular attention. Industrial production is more susceptible to the effects of short-term governmental policies—and reflects them better—than do other economic activities, and in particular those of the agricultural sector. Likewise, the industrial sector is often assigned a particularly heavy weight—e.g., in comparison with the services sector —by government observers. For these reasons, the index of industrial production will usually represent the growth target in the present study.

Beyond the problem of what statistical series best represent the various target variables, the question of how these series should be interpreted must be raised. It must be assumed that a given change (or position) of a series indicates a desirable movement (or level) for a particular target; while another position is undesirable and calls for correction. The number of possible assumptions, i.e., of possible modes of governmental views, may again be very large. In general, the position of a given target, as indicated by a given time series, could be judged by its level, by its direction of change, or by its rate of change. Thus, where the price stability target is concerned, any increase in the price level (measured, for example, by the consumer price index) may be regarded as a disturbance which should be corrected. But if a general upward trend of prices exists, it is possible that a price increase no greater than the average is not a source of concern, or that faster increases are not considered a disturbance as long as the price level is below its "trend line." A similar variety of

models is conceivable when unemployment is examined. When the rate of unemployment is high in comparison with its average level, and rising, this would certainly be considered a disturbance. It is not clear, however, how a situation in which unemployment is high but falling would be regarded; or, to take the opposite combination, how a situation of low but rising unemployment should be treated. The same ambiguity holds when the growth target is examined. A situation where industrial production is both below its "trend line" and falling would, almost certainly, be regarded as a disturbance. The answer is not clear, however, when the rate of increase is above average, but production is still below its trend level, or when the rate of increase is falling, but production is above its trend level; and so on.

It would not be feasible to examine all such possibilities. In any case, it should be recalled that the study does not purport to investigate *all* the possible targets, and cannot therefore be exhaustive. For this reason, only a very few models of reaction will be examined. In general, it will be assumed that price stability is contravened when prices rise more rapidly than in recent experience; that the target of high employment is contravened by an increase of unemployment; and that a decline in the rate of increase of industrial production (and, needless to say, a negative rate) indicates a deterioration of the target of rapid growth. In the countries which have been investigated, it appears from casual observation that other reasonable models would most often have given similar indications about the timing of disturbances. In some cases where these indications are clearly contradictory, this will be taken into account informally. It should again be emphasized, however, that this procedure does not purport to be an exhaustive and definitive study of all reasonable possibilities. It is restricted, as has been stated earlier, to the examination of a very limited number of the simplest, and probably most obvious, among the possible models. The expansion of the scope of assumptions concerning potential indicators of achievement of targets, and the adoption of alternative approaches to those which are followed here, may be a promising avenue for further investigations along the lines of the present study. This probably applies with particular force to the target of rapid growth.