



Martin Cave and Paul Hare

# ALTERNATIVE APPROACHES TO ECONOMIC PLANNING

MARTIN CAVE and PAUL HARE



#### © Martin Cave and Paul Hare 1981

All rights reserved. No part of this publication may be reproduced or transmitted, in any form or by any means, without permission.

First published 1981 by
THE MACMILLAN PRESS LTD
London and Basingstoke
Associated companies in Delhi Dublin
Hong Kong Johannesburg Lagos Melbourne
New York Singapore and Tokyo

ISBN 0 333 26689 7 (hard cover) 0 333 26690 0 (paper cover)

Typeset in 10/12 IBM Press Roman by STYLESET LIMITED Salisbury · Wiltshire

Printed in Hong Kong

This book is sold subject to the standard conditions of the Net Book Agreement.

The paperback edition of this book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, resold, hired out, or otherwise circulated without the publisher's prior consent in any form of binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

## PREFACE

The aim of this book is to try to relate the experience of economies with varying types of planning systems to recent theoretical or analytical work on economic planning. We have both been concerned for a number of years with research into the operation of centrally planned economies and have become aware of the gulf separating the predominantly descriptive and institutional literature on planned economies and the theoretical literature on economic planning. We have sought to bridge that gap in this book by identifying and analysing certain major aspects of any planning system, the study of which helps to illustrate the actual behaviour of particular planned economies. We do not delude ourselves that we have wholly succeeded in this aim, but we believe that we have gone some way towards bringing the two elements — experience and theory — closer together.

The introductory chapter of the book sets out the major problems encountered in any planned economy, and briefly discusses the principal ways of dealing with them. The next three chapters comprising Part I give an account of planning in practice in a traditional centrally planned socialist economy, in a reformed socialist economy and in France, the major Western country using an indicative planning system.

As we have chosen to illustrate our discussion of planning with three particular economies, it is worth outlining the reasons for our choice. Amongst the socialist economies of Europe, the U.S.S.R. and Hungary stand at opposite poles in terms of the nature of their planning system. In the U.S.S.R. the traditional planning system which grew up in the 1930s has survived virtually intact, whereas in Hungary a serious and well-conceived economic reform was implemented in 1968 and its main features have survived to this day. The reform provides for greatly enhanced enterprise independence and the much greater use of markets to allocate resources. The planners rely heavily (but by no means entirely) on the conventional instruments of macroeconomic policy and upon the guiding role of the projections they prepare for the economy as a whole and for its individual sectors. In this respect, of course, their role is closer to that of the French planning commission, and one might expect some convergence between the methods of planning used in the two countries. Thus in a sense the Hungarian case stands between the traditional centrally planned economy and a system of indicative planning in a private ownership economy. One of our aims is to evaluate the experience of the three countries in this light.

viii Preface

Part II deals with the theory of economic planning. An introductory chapter sets out some of the basic issues, and this is followed by successive chapters dealing with informationally decentralised planning procedures, the theory of indicative planning, methods of plan implementation and the problem of incentives.

The two concluding chapters return to the practical experience of planned economies. The first discusses the use of mathematical models for planning, and the impact which these models have had in the U.S.S.R., Hungary and France, while the final chapter summarises our views about the appropriate ways of analysing planned economies and the prospects for economic planning.

Our previous work on economic planning has been principally concerned with the Soviet Union and Hungary. However, we have considered it worth while to extend the coverage of this book to the theory of indicative planning and to France's experience of planning, in order to bring out the similarities and differences which exist between the methods and role of economic planning in countries with different ownership systems and different degrees of centralisation of decision-taking. This may have led us into areas where our knowledge and understanding is incomplete, but we hope none the less that our decision is justified by the wider experience of planning on which we have been able to draw.

As is apparent from the concluding chapter, both of us agree upon the desirability in principle of economic planning, and we also agree on the scope for improving, if not for perfecting, planning systems. We hope therefore that our book may encourage some readers to think about some of the many unsolved problems of planning and perhaps contribute their own solutions.

We are grateful to Sue Robertson and Philip Hanson for reading several chapters and providing helpful comments, and express our thanks to Mrs A. Cowie, Mrs C. McIntosh, Mrs C. Newnham and Mrs W. Sharp for efficient and accurate typing.

M. C. P. H.

## **CONTENTS**

	Prefa	nce	vii
1	INTRODUCTION		
	1.1	The debate about the possibility of planning	1
	1.2	Plan construction and implementation	6
	1.3	Directive planning and indicative planning	10
	1.4	A brief taxonomy	15
		Part I Planning in Practice	
2	THE	OPERATION OF TRADITIONAL CENTRALLY	
_	PLA	NNED ECONOMIES	17
	2.1	The organisational framework	17
	2.2	Plan construction	20
	2.3		28
	2.4	<u> </u>	31
	2.5	· · · · · · · · · · · · · · · · · · ·	33
	2.6	The problem of innovation	35
3	ECC	NOMIC REFORMS AND THEIR IMPACT ON PLANNING	37
	3.1		37
	3.2		46
	3.3	*	58
	3.4	The problem of incentives in planning	63
4	INDICATIVE PLANNING IN FRANCE		69
	4.1	Constructing the indicative plan	69
	4.2		74
	4.3	How well has indicative planning worked in France?	80
		Part II Issues in the Theory of Economic Planning	
5	THE ECONOMY AND THE PLANNING PROCESS		
	5.1	The choice of a planning process	84
	5.2	Planning as the co-ordination of information	86
	5.3	Hierarchy and authority	90

vi	Contents
VI	Content

6	DECENTRALISED PLANNING PROCEDURES		
	6.1 Characteristics of planning procedures	97	
	6.2 The Lange procedure	100	
	6.3 Other decentralised procedures	105	
	6.4 Increasing returns to scale	109	
	6.5 A provisional assessment	113	
7	THEORY OF INDICATIVE PLANNING		
	7.1 Information and expectations under competition	116	
	7.2 Co-ordination of investments	121	
	7.3 Problems of control	128	
	7.4 Indicative planning and macroeconomic policy	132	
8	PLAN IMPLEMENTATION		
	8.1 Instruments and types of control	134	
	8.2 Control at enterprise level		
	8.3 Control of investment	148	
	8.4 Macroeconomics of plan implementation	154	
9	THE INCENTIVE PROBLEM		
	9.1 Managerial incentives and the traditional planning system		
	9.2 The reform of incentives: elicitation schemes		
	9.3 Is there an incentive-compatible mechanism?	174	
	Part III Applications and Prospects		
10	MATHEMATICAL METHODS AND PLANNING	178	
	10.1 The Soviet Union	178	
	10.2 Hungary	183	
	10.3 France	190	
	10.4 Can mathematical models improve planning?	194	
11	CONCLUSIONS AND PROSPECTS		
	11.1 On constructing a theory of planning		
	11.2 Social and political aspects of planning		
	11.3 Planning East and West — the prospects		
	Bibliography	213	
	Index	223	

## 1 INTRODUCTION

## 1.1 The debate about the possibility of planning

Although the planned economies of Eastern Europe and elsewhere are not successful in all respects, their performance must nevertheless be judged very favourably if the same criteria that we often apply to Western economies are applied to them, for in the last two decades the planned economies have consistently maintained full employment, and quite rapid growth rates, while avoiding for the most part the problems of inflation and severe overseas deficits which would have been their concomitant in the West. It is true that the economic achievements of Eastern Europe have not always matched their ambitious plans, but the achievements themselves have been impressive enough. Even the much less comprehensive and ambitious forms of planning which have been adopted in France have gone along with rather better economic performance than in much of the rest of Western Europe, though the direction of causality remains unclear.

In this context it may well seem quite unnecessary to enter into debate about the possibility of planning; clearly it is possible, and equally clearly it works. But there are two reasons why we should consider the question more carefully.

First, the performance criteria mentioned above were entirely macroeconomic, saying nothing about the economic behaviour of individual enterprises or households. It may turn out that apparent macroeconomic success is bought at the cost of grave failures at the level of microeconomics - certainly the literature on the planned economies contains numerous references to enterprise inefficiency, production of the wrong products, poor quality of production, and so on, amounting to a dismal catalogue of shortcomings. Yet it is rarely obvious how seriously one should regard such references. Sometimes they may be isolated instances, in other cases they could be more widespread but still not be very significant from a social point of view. For example, persistent failure to meet certain planned output targets may be acceptable either if there are readily available substitutes, or if the planners deliberately set the target too high in the expectation of inducing the 'right' amount to be produced. By neglecting this possibility some of the planning literature casually assumes the planners to be surprisingly unintelligent. Nevertheless, some problems remain and it still seems worth while to examine the possibility of planning from the viewpoint of microeconomic performance.

Second, at the time when the debate first arose (the 1920s and 1930s) there was no concrete evidence that a planned economy could function successfully.

The Soviet Union was just embarking on its first five-year plans and no other socialist countries were then in existence. At the same time the West was entering the Great Depression, from which it suffered throughout the 1930s. The experience of this period no doubt produced an extremely defensive attitude on the part of Western economists. While a few supported the new socialist experiment in the Soviet Union, many others were hostile to it, and tailored their arguments about planning accordingly. The result was a debate which raised many important points about the nature of a planned economy, and some of these points are still the object of vigorous discussion in modern theoretical work on planning. Parts of the debate, set out below, can usefully serve as an introduction to this book.

The debate was largely cast in theoretical terms, taking the general-equilibrium model of perfect competition as its starting-point. This model is itself debatable, of course, as became apparent in the course of the argument about planning; however, it is convenient to begin by accepting it, then criticise it later on, since that corresponds to the historical course of the argument.

The simplest form of the perfect-competition model sees the economy as a collection of firms and households, with no economic role to be played by government. Each economic agent, whether a firm or a household, responds to prices given by the market. These prices determine costs of inputs and incomes from the sale of output for the firms, which then select the production plans (supply functions for output, derived demand functions for inputs) which maximise their profits. Similarly, the same prices determine household budget constraints, subject to which households choose the consumption plans (demand functions for goods and services, labour supply) which maximise their utilities. For an arbitrarily fixed set of prices these supplies and demands, when aggregated over all households and firms, will not (typically) be in balance: for some goods there will be excess demand, and for others there will be excess supply. However, under certain conditions (to be discussed below) it has been shown that there is a set of prices (possibly more than one set) at which the markets for all goods and services will be in equilibrium. Such a set of prices is called a competitive equilibrium. It is often convenient to interpret equilibrium to mean that supply and demand for each good are equal. More generally the concept allows the possibility that the equilibrium may be characterised by excess supply, the corresponding price being zero; this is the case of 'free goods'.

Market theorists claim that an economic system based on free markets should be able to find a competitive equilibrium set of prices. Moreover, these prices, apart from equilibrating demands and supplies for all goods and services in the economy, have several desirable properties—which has given the study of perfect competition considerable appeal to economic theorists. Once the right prices are established it turns out that they are surprisingly economical from an informational point of view, in the sense that an economic agent need not know anything other than these prices, apart from information which pertains only to

himself (preferences for the household, production possibilities for the firm); second, the prices provide the correct *incentives* in the sense that if agents take them as given and maximise profits or utilities, as relevant, they will take decisions which together yield an equilibrium. These two properties together are often referred to as the *decentralisation* property of competitive equilibrium.

In addition, the allocation of resources generated by equilibrium prices turns out to be both technically efficient and Pareto efficient. The former means that it would be impossible to produce more of any good without either (i) producing less of another, or (ii) using more inputs. The latter refers to an allocation of resources at which no household could be made better off without some other household being made worse off.

If this is the view one has of the market system, then it is not really surprising that proponents of central planning have come under attack, especially when they have intended that their planning system should supersede the market altogether, for the planners' main task is considered to be that of computing the equilibrium prices of a competitive solution. Even if the planners do not propose to employ the prices to enforce their chosen allocation but intend to issue direct instructions to firms and households, in effect it is still necessary to calculate the competitive equilibrium.

This is why Hayek (1935) considered planning to be impossible. He visualised quite correctly the immense number of demand and supply functions which make up a general-equilibrium system, running into several millions, and saw no practical method by which the planners could find a solution. Indeed, so immense is the system that even the most modern computers are unable to calculate anything like a complete solution, though recent work by Scarf (1973) has led to the development of some useful solution algorithms which work well for small systems of demand and supply equations. (An algorithm is a computational procedure for solving a given problem, usually by repeating parts of the calculation in order to obtain successively better approximations to the solution. These repetitions are called *iterations*.) We have to accept, then, that Hayek had a point, but his important argument is far from the end of the matter.

Hayek started by assuming that the market system could, and did, find a solution to the general-equilibrium problem, but he did not really specify how this happened. And once raised the question is not one to be evaded easily. Suppose, for example, that the market system is not initially in equilibrium; then there will be excess demands in some markets and excess supplies in others. Two difficulties with standard theory arise from this situation. To begin with it seems that prices no longer provide agents with all relevant information, for away from competitive equilibrium some agents will find that they have planned to produce too much of certain commodities, while others will be unable to satisfy their demands. Thus the informational economy of perfect competition is lost as soon as equilibrium is disturbed — and so are its optimality properties, unless equilibrium is quickly restored.

Also, in the presence of market imbalances one expects prices to be changing, but all agents are supposedly price-takers in the model of perfect competition. Arrow (1959) found one way out of this problem by conceding that in practice all firms set their own prices, with reference to their own market experience and expectations about what the equilibrium price will turn out to be. In equilibrium all firms charge the same price, but elsewhere there can be a range of prices for each product coexisting as a result of imperfect information on the part of buyers. Individual firms can behave as quasi-monopolists until equilibrium is re-established, since they all believe themselves to be facing downward-sloping demand curves.

Arrow's approach is undoubtedly realistic, but its complexity has prevented others from adopting it. Instead, an earlier and much simpler approach is still employed to 'explain' price changes in the course of adjustment to equilibrium: this is the device of the so-called Walrasian 'auctioneer'. The auctioneer is an additional artificial agent whose sole function is to observe the balance of supply and demand, raising prices where there is excess demand and lowering them in the opposite case with the aim of restoring equilibrium. But once the need for such an agent was recognised it was an easy matter for Lange (1938) and Taylor (1938) to step into the fray and propose that the state could carry out the required price-adjustment functions. Thus in their view a planned economy would mimic the operation of a market system by instructing the state-owned enterprises to behave in a profit-maximising way in response to the announced prices; similarly, households would maximise their utilities. And the planners, acting on behalf of the state, would collect information about the proposed demands and supplies and adjust the prices as required. In principle, therefore, the planners are not required to engage in the impossibly complex calculations envisaged by Hayek, and their task should be well within the limits of feasibility.

By providing the 'auctioneer' to call out the prices the planners might even be able to find equilibrium more effectively than the standard market system. Not only that, but their control over the disposition of profits, resulting from state ownership of the means of production, should enable the planned economy to operate with a more equitable income distribution than is normally possible with a market system. True, the market allocation is Pareto efficient, but that is compatible with virtually any distribution of incomes; the planners' allocation will also be Pareto efficient, and will be an improvement over the alternative market allocation when judged in the light of social preferences. (For discussion of social preferences and equality, see Arrow (1963) and Sen (1973).)

So far we have presented Hayek's argument against the possibility of planning, together with counter arguments by Lange and Taylor. We now examine the assumptions underlying the competitive model around which the debate centred in order to identify a number of the model's shortcomings. In particular, we must discuss more fully than before the questions of information and incentives in the economy; these issues are taken up in this section, while a proper treatment of intertemporal aspects of the competitive model, as well as of the

problems resulting from uncertainty, are reserved for section 1.3 and Chapter 7 below.

Apart from the contentious assumption that equilibrium will be reached by the operation of normal market forces, the perfectly competitive model rests on certain other assumptions which have implications for the operation of a planned economy. The first of these is *convexity*, usually taken to mean decreasing returns to scale in the sphere of production, and also implying that demand functions arising from the household sector are continuous. (For a discussion of these convexity conditions and their implications, see Koopmans (1957) and Lancaster (1968).)

Now if the decreasing-returns condition always holds, there is no problem either with the basic competitive model or with Lange's reinterpretation of it as a model of the operation of a planned economy. However, if some firm experiences increasing returns to scale, the situation is very different. According to the model, the firm has to behave as a price-taker, in which case its profitmaximising decision involves producing nothing, or an infinite amount, depending on the ruling prices: no finite level of output can be an equilibrium position for this firm. Consequently it does not make sense to regard such a firm as a pricetaker; alternatively, we could either supply the firm with some additional market information, for example the level of demand, or availability of one or more of its inputs, and allow it to maximise profits subject to these restrictions; or we could control the firm in a different way all together, by simply giving it an output target and instructing it to minimise the costs of producing at the target level. Thus where some firms have decreasing and others increasing returns to scale, it seems that the economy would function very badly if all firms were expected to respond to the same sort of price signals. Even in a market economy there would be a case for treating some firms differently, for example by nationalising those subject to increasing reutrns. Likewise in a planned economy one should not expect to control all firms in exactly the same way, though much of the theoretical literature tacitly assumes that one would. Different types of firm require different information or different incentives or both if they are to function satisfactorily from a social point of view (see Portes, 1971).

A second standard assumption of market-equilibrium theory is the absence of externalities in production and consumption. These result in divergences between social and private costs and benefits of various activities but cause no difficulties as far as equilibrium is concerned; their drawback is that the resulting equilibrium may not be technically efficient and certainly will not be Pareto efficient. However, the standard remedy of introducing appropriate taxes and subsidies to bring private costs into line with social costs (similarly for benefits) is equally appropriate both for the market model and Lange's market-type planned economy. What is not so easy is calculation of the correct taxes and subsidies, for these require the centre to accumulate considerable volumes of information about technology and preferences which would not typically be revealed in the normal course of operation of a system of markets. In some cases, of course, if

the external effects are restricted to a small group of producers, the appropriate solution is a merger to internalise the effects; this case is likely to be rather less demanding, informationally, than the general case.

Lastly, we need to look at the price-taking assumption itself. From a purely theoretical point of view we can merely announce that firms are price-takers and end the discussion there, since there is little reason to query the price-taking behaviour in the household sphere. That is not really good enough, however, if we wish to construct a satisfactory theory applicable to planned economies. A sufficiently large number of producers of any product makes price-taking behaviour quite plausible, but large numbers are not always assured. Small groups of firms might be expected to collude and engage in various forms of imperfectly competitive behaviour. The standard means of preventing this involves the postulate of free entry and exit; this requires that technical information is freely available to potential entrants, which is not always true in a market economy but is much more likely to be true in a planned one. It also requires that the fixed costs of establishing a new firm should be fairly small. In a market economy this is a matter for private calculation and judgement, whereas in a planned economy proposals from individuals would have to be approved by the planners; since the latter would be aware of the possible adverse effects of a new entrant on existing firms, they may well perceive higher entry costs than would arise in a market economy. The force of these points would obviously depend on the commodity under discussion, but it would be very surprising if the freeentry assumption turned out to be fully justified either in a market economy or in a planned economy. Hence the firms in at least some branches of the economy are unlikely to behave in a perfectly competitive fashion, which again means the failure of optimality conditions and the need for government intervention even in a market-type economy.

Thus even in a market economy there are many reasons for the government to intervene in some way to regulate the outcome of market processes. In a planned economy the same reasons hold good, with the further addition of Lange's point that the basic function of the market 'auctioneer' could itself be taken over by the state and operated by the planners. Even in a market economy the function of 'auctioneer' is provided by such bodies as trade associations, forecasting organisations, market-research consultants, and so on. It is not costless. Now after this rather abstract introductory section, it is time to begin discussion of the more concrete features of planning processes.

#### 1.2 Plan construction and implementation

However planning is conducted, and some specific alternatives are discussed in the next section, it is inevitably a complex activity. In this section we survey rather sketchily some of the main aspects of economic activity which might be considered to fall within the scope of state control under some form of planning system. Many of the issues raised are developed further in later chapters, with particular reference to the experiences of the Soviet Union, Hungary and France.

As the title of this section suggests it is very useful to begin by distinguishing between plan construction (often called plan formulation) and plan implementation. Normally, plans are established to cover definite time periods, though at times an alternative basis is preferable: for example, a plan to develop a certain industry might be very specific about the projects which need to be completed but quite vague on details of timing. However, taking time as the basis, the activity of plan construction should be going on before the plan period (i.e. the period to which the plan refers), while plan implementation consists of all the government policies introduced to secure realisation of the plan. As such it is normally carried on during the plan period. In practice, there is not such a strict separation between the two kinds of activity, since one plan is being implemented while the next is under construction. However, it is important to note that plan construction has a deadline to meet, for it is not usually feasible or economically desirable to continue plan construction far beyond the start of the plan period to which the new plan refers. Sometimes it can be worth while to allow part of the plan period to elapse before fixing the plan, if sufficient improvement can be achieved by the delay; this case is discussed by Marschak and Radner (1972), and also in Chapter 6 of this book. For the moment we neglect the possibility.

Let us look at the plan-construction period first, and then outline the salient features of planning activity; interestingly, whatever kind of planning system we have in mind these features are very much the same, which is one reason why it is useful to discuss the plan-construction period separately. It turns out that the most significant differences between alternative planning systems can be recognised in the various arrangements made for plan implementation. These differences will become apparent later on when we come to individual countries.

It is convenient to consider plan construction in terms of three essential stages: namely, analysis of the past, projections of the outcome desired in the coming plan period, and selection of the policy measures which should achieve that outcome. It would be foolish to make plans for future development without allowing for constraints implied by past commitments, and analysis of the past is the means whereby these are identified.

Such analysis includes not only the development of production itself but also foreign trade, incomes and consumption of the population, investment, credit, prices and the balance of incomes to, and outlays from, the government's budget. Study of these areas will also reveal what went wrong with the previous plan, as well as the respects in which it was more successful than expected. Too much of the literature on planning forgets that, if taken seriously, planning becomes an ongoing social process in the course of which society learns what hopes it can place in planning, while at the same time the techniques and procedures used in the light of experience and changed circumstances of economic life can be modified. This is what makes analysis of the past so important.

The second stage of plan construction is the projection of various possible outcomes over the plan period and choice of the preferred outcome. Often, the time available for plan construction, combined with the general complexity of

the task, prevent more than one variant from being considered; such has been the situation in Eastern Europe, until relatively recently, and in that case there is no explicit question of choice. Any choices which arise are made somehow in the course of preparing the single plan 'variant'.

The possible outcomes depend both on the legacy of the past and on certain tendencies which are largely outside the control of whatever country we are concerned with. For example, although demographic trends can be influenced in the long run by means of state policy on abortion, contraception, provision for child care, health care in general, and so on, it is nevertheless the case that all potential entrants to the labour force in, say, the coming fifteen to twenty years will already be born. Hence planners wishing to secure full employment have no alternative but to accept this situation as a constraint, ensuring that their plans will indeed provide the right number of jobs with a suitable mix of skill requirements.

Foreign trade provides another example worth mentioning here. The planners may wish to import various types of machinery or raw materials, and face the problem of exporting enough to pay for these imports. In the very short run they may be able to incur overseas debts, but eventually the debt has to be repaid unless investment by foreigners in the domestic economy is acceptable on a permanent basis. In any case the problem facing the planners is that revenues from exports are likely to depend on general world market conditions beyond their control, while import prices are also outside their control. This uncertainty about trade prospects should encourage the planners to prepare alternative plan variants based on different assumptions about the development of trade - even the UK government began to do this recently in its presentation of short-term forecasting exericses. To be fair to the planners, however, it is hard to see how they could have included such a large oil price rise in their plan variants for 1971-5, and this was the major cause of balance-of-payments disturbances during that period. Thus foreign trade both constrains the planners and offers opportunities but it is always subject to substantial residual uncertainty.

Bearing in mind all the constraints the outcomes which the planners go on to project are alternative possible futures for the economy over the next plan period. These outcomes are usually expressed in fairly aggregated terms, referring to growth rates of consumption, production, and so on, and each projection is consistent with the major constraints of which the planners are aware. The government then has to select the feasible variant which it prefers, though we defer to Chapter 5 discussion of some problems arising in specifying an objective function for government.

It may appear that we have reached the end of plan construction. We have allowed for past experience and the most important constraints, considered alternative outcomes in the plan period and selected the one most preferred by government. Surely we should now move on to implementation of this plan. The problem is that we do not yet have a plan, for a plan is not the same as a preferred outcome. No government is in a position to issue instructions that

GNP should grow by 5 per cent p.a., nor can they demand that the trade surplus should be so many million roubles. Instead, all governments have to introduce a wide variety of economic measures, often called *instruments*, which induce or compel the other economic agents — firms and households — to produce collectively something close to the outcome desired. The last stage of plan construction therefore consists of the selection of an appropriate government policy — a set of economic instruments — with the object of bringing about the realisation of the outcome chosen at the second stage.

The range of possible instruments is immense, including monetary and fiscal policy as they are carried on in the West, price and wage controls, controls operated through the credit system, instructions concerning enterprise outputs or their use of material and labour resources, and so on. It would be pointless to give examples of detailed combinations of instruments which might be employed to put some plan in operation, since much of the rest of the book does just that. A few general remarks about instruments, however, may clarify a few points.

First, to the extent that instruments are established before the relevant plan period they have to be based on some view of the way in which exogenous events will turn out, for example the trade balance already mentioned above, or the harvest. While it might be desirable from a theoretical point of view to set tax rates which varied automatically with the state of the harvest, that is not usually considered a practicable proposition. Instead, at least some instruments have to be set with a view to the possibility that changes will be required during the plan period itself.

This observation leads on to a second issue: namely, the question of plan flexibility — given that some instruments have to be changed from time to time, for example prices, the exchange rate and some components of government spending at the very least, one has to ask how often it is desirable to make such changes. Certainly some stability is very valuable, in that it facilitates comparisons between what was planned and what actually happened, and provides a stable economic environment for enterprises. On the other hand, changed conditions require adjustments to instruments, and it can be very harmful to delay the adjustments, especially if speculative anticipatory actions are likely on the part of households or firms. On balance, different countries exhibit very different practices in regard to flexibility, with countries such as the United Kingdom modifying parts of its economic policy every few months, in contrast to many of the socialist countries where some details of enterprise plans are changed quite often but producer and consumer prices are rarely adjusted more than once in a five-year plan period.

Finally, it should be emphasised that all economies have certain characteristics which impart an element of flexibility into their day-to-day operations. Thus in most countries small departures from the plan are unlikely to call for any significant revisions in economic policy. These characteristics are such items as stocks of materials and final commodities, foreign-exchange reserves, and spare capacities of various kinds. Different countries may well choose or need to hold different

amounts of such 'reserves', depending on the way in which their respective planning systems operate and the level of optimism built into the initially constructed plans.

A brief examination of plan implementation concludes this section. As already noted, plan implementation comprises all the planning activities which go on during the plan period. If the plan goes well, that will involve little more than monitoring progress, different aspects of this being the responsibility of such diverse bodies as the national bank, departments concerned with foreign trade, prices, wages and employment, and various industry ministries. To a large extent such monitoring merges into the first stage of constructing the next plan. However, if all does not go according to the original plan, for example because certain industrial projects are not completed in time, then the situation no longer remains so straightforward.

The most important task of plan implementation is to ensure the smooth functioning of the economy by correcting or mitigating the effects of mistakes in the initial plan. It is not only pointless but totally impossible to construct a perfect plan, though improvements in technique can undoubtedly help to avoid some kinds of error. Rather than attempting the impossible, therefore, the planners should devise procedures for responding effectively to imbalances as they are revealed in the course of monitoring plan fulfilment. Without being very specific about the type of imbalance or disproportion under discussion, it is difficult to produce a very useful theory of plan implementation, though several aspects of it are discussed in later chapters. In contrast, economic theory has met with much greater success in formulating the plan-construction problem in quite a general and illuminating way. Some of the developments in this area are surveyed in Chapters 5 and 6 below.

### 1.3 Directive planning and indicative planning

Up to now, while introducing some general ideas, we have been deliberately vague about the details of the planning system under consideration. However, the remainder of this book is about the theory and practice of three quite distinct forms of planned economy: namely, the Soviet Union, Hungary and France. Indeed, many people would dispute our application of the term 'planned economy' to France. In order to justify our approach, therefore, we need to provide a certain amount of conceptual clarification, as well as a brief sketch of each of our case-study economies to indicate where they fit into the conceptual framework of the book. This is what we hope to accomplish in this section.

As the reader may well anticipate, the Soviet Union is taken as our example of a directive planning system, France our example of indicative planning, and Hungary is an intermediate case (though much closer to the Soviet end of the spectrum) which we sometimes refer to as a system of indirect financial planning. Despite the major differences between these systems there are two crucial similarities which, although not often dwelled on subsequently, should be borne in mind: namely, the operation of unrestricted household choice in determining