STABILISING EFFECTS OF FISCAL POLICY

Volume I

José Marín Arcas

Banco de España - Servicio de Estudios
Estudios Económicos, nº 58 - 1997

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C O N T E N T S

FOREWORD

This study presents some "stylised facts" regarding the relationships observed between fiscal variables and the economy's cyclical fluctuations. Rather than attempting to test a particular theory or model, it uses a simple and well defined theoretical and statistical framework to arrange and present the basic features of fiscal policy which seem relevant to establishing its possible relationship with fluctuations in economic growth. When, some years back, O.J. Blanchard was reviewing progress in macroeconomics from 1975 onwards ("New Classicals and New Keynesians, the Long Pause", September 1991, Saint Louis Fed Conference on Business Cycles), he argued that one of the areas in which progress had been least satisfactory was in the "development of convincing data description methods". This paper aims to help fill this gap, specifically as far as the relationships between fiscal policy and the stabilisation of economic fluctuations are concerned.

From a theoretical standpoint most economists nowadays accept that economic policies must be formulated with a view to the medium term and enjoy credibility among private agents in order to be effective. This involves limiting the authorities' discretion by some kind of rule, compliance with which can easily be monitored by such agents. Yet in practice there is very substantial disagreement over the nature of such rules and their potentially adverse consequences from the point of view of economic stabilisation. This disagreement is particularly intense in the case of the European countries which are planning to establish economic and monetary union, relinquishing the use of monetary policy and the exchange rate for stabilisation purposes, because the setting of strict rules for fiscal policy may prevent it exerting its stabilising effects. Specifically, it is feared that rules limiting the size of the general government deficit and debt may also undermine the stabilising capacity of fiscal policy, the only policy available to the national authorities to cushion the impact of asymmetric shocks which affect their economies. To discuss this problem two questions need to be answered first. What stabilising effects has fiscal policy had? And what has their magnitude been?

The usual procedure when trying to assess the stabilising effects of fiscal policy in the past is to estimate a more or less complex model of the

national economy and to perform counterfactual simulation exercises. Ideally, the model will distinguish between endogenous variables (whose values are determined within the model) and exogenous variables (whose values are predetermined from outside the model). The latter include variables which can be controlled by the authorities and used as instruments of economic policy. Counterfactual exercises attempt to answer questions of the type such as what would have happened in the economy represented by the model if certain exogenous variables had had certain hypothetical values instead of the values actually observed. The answer to this type of question permits a hypothetical causal connection to be established between the objectives of economic policy, formulated in terms of the values desired for the model's endogenous variables, and the instruments which the authorities can control.

The approach used in this study is different. It is based on the fact that the stabilising effects of fiscal policy are reflected in the values actually observed in the available statistical series, and that they may be quantified by a simple statistical procedure to measure the simultaneous fluctuations of the variables. The main limitation of this procedure is that it does not provide a causal explanation of the observed events. When, for instance, it is said that taxes on income have a stabilising effect on fluctuations in private-sector gross disposable income, this does not mean that these taxes are a variable directly controlled by the fiscal authorities, which can be used as an instrument to attain their stabilising or other objectives. The decisions of the fiscal authorities on the variables they control (such as legal tax rates) are combined with the decisions of other economic agents on other variables under their control (such as wages) and with other factors outside the control of any agent in particular (such as climate) to produce the values actually observed of the relevant endogenous variables (such as income and the revenue from the taxes levied on income). The procedure used here does not permit these influences to be separately identified, nor the degree of responsibility of the tax authorities for the final result to be evaluated. Nonetheless, it is capable of establishing whether the interaction of all the factors has, in the past, given rise to adjustments to tax revenues which have had a stabilising effect on the fluctuations in private-sector disposable income. This effect cannot be attributed to a single cause, nor is any explanation of why and how it has arisen given here. Answers are only given to questions as to whether the stabilising effect existed and what its magnitude was.

These questions are answered in this paper using a very elementary approach, accessible to anyone with a basic knowledge of macroeconomics (the simplest Keynesian model) and statistics (the ordinary least squares regression model). Chapter I offers the theoretical and statistical background, which acts as an introduction for defining the stabilising ef-

fects of fiscal policy and sets out the method used for estimating them. Chapter II gives the historical background to economic policy since 1960, as a general reference for subsequently examining the stabilising effects of fiscal policy in specific countries. The subsequent chapters respectively present the stabilisation policies applied in the main industrialised countries (United States, Japan, Germany, France, Italy and United Kingdom) and in Spain in recent decades, and the method proposed for estimating the stabilising effects of fiscal policy in these countries. The final chapter draws the main conclusions of the paper in the form of "stylised facts" to be explained by economic theory.

All the statistical information used is from the AMECO data base of the Directorate General of Economic and Financial Affairs of the European Commission, including the forecasts made by its Technical Services in November 1996 for the years 1996 and 1997.

In conducting this work I have benefited from the co-operation and comments of many people. I should like to thank José Luis Malo de Molina, José María Bonillla, Pilar L'Hotellerie-Fallois and Julia Salaverría, who so helpfully read the chapters and offered useful advice. Javier Vallés, Olympia Bover, María de los Llanos Matea and Juan José Dolado revised the econometric results and prevented many mistakes being made. Several others read and discussed parts of the text with the author, enhancing its content: José Manuel González-Páramo, Rafael Padilla, Isabel Argimón, Francisco Martí, Angel Luis Gómez, Ana Buisán, Esther Gordo, José Manuel González Mínguez, Joaquín Zamorano and participants in various seminars hosted by the Banco de España Research Department, CEMFI and the Economic Analysis Department of the Faculty of Economics at the Madrid Complutense University. María Luisa Comín and María Jesús Núñez bore patiently with me, typing out successive versions of the text. Jesús Briones assisted with the data base. José Antonio Carro and Rafael Martínez were responsible for the charts. I gratefully acknowledge them all.

I

THEORETICAL AND STATISTICAL FRAMEWORK OF THE ANALYSIS

I.1. Introduction

To understand the stabilising effects of general government economic operations it is essential to consider the repercussions of such operations on the other sectors of the economy. Given the multiplicity and complexity of these operations when viewed in the National Accounts statistics, it would seem worthwhile first to review elementary economic theory in order to present, in an abstract and simplified manner, the key aspects of the interdependence of the various sectors and the determination of the macroeconomic equilibrium resulting from their decisions as to consumption, investment, public spending, tax, etc. This chapter sets out a simple theoretical model to present the central ideas on which analysis of the stabilising effects of the fiscal policy implemented by general government turns. It further specifies the statistical and accounting framework in which the variables to be analysed are defined and quantified. The fiscal policy stabilisers are also defined, and a method, which will be applied in the following chapters, is proposed for their estimation.

Fiscal policy involves determining public revenue and spending in order to attain objectives relating to efficiency, redistribution and stabilisation. Here we analyse only its stabilising effects on private-sector income and aggregate demand. General government has two main functions: the redistribution of national income and wealth through taxes and transfer payments, and the provision of non-market services for the community via purchases of goods and services. In consonance with these functions, two types of fiscal policy stabilising effects are distinguished: that on the economy's private-sector disposable income and that on the economy's aggregate expenditure.

Income redistribution operations may directly help to stabilise private-sector disposable income, which may be a desirable objective in itself, as long as private agents prefer to have a stable flow of income to spend that is not subject to cyclical fluctuations. If private-sector demand and spending are stable functions of the sector's disposable income, then the stabilisation of this income indirectly helps to stabilise demand and aggregate output. General government consumption and investment operations may also directly help to stabilise the economy's aggregate spending and total demand in real terms, thus ensuring the stabilisation of the economy's output, employment and income.

The stabilisation of aggregate income or demand is not an end in itself, but is an intermediate objective to enhance social well-being. From the macroeconomic standpoint, however, it is not possible to use a social well-being function representing individuals' preferences in order to evaluate the stabilising effects of fiscal policy. Nor is it possible to distinguish whether individuals prefer that fiscal policy stabilise private-sector disposable income or the aggregate demand of the economy, or to estimate the cost in terms of the efficiency of the redistribution or stabilisation of income. These key aspects of fiscal policy are not taken into account here, because our sole intention is to describe the sign and the magnitude of these effects, without analysing their consequences on social well-being, or the rules guiding the agents' decisions, or their discretionary or automatic nature.

Insofar as possible, this study seeks to be self-contained and accessible to anyone with a basic knowledge of macroeconomics. It begins with an elementary explanation of the analytical foundations that support the empirical approach used to describe the stabilising effects of fiscal policy. Special emphasis is placed on the importance of using an equilibrium model, and a statistical framework adapted to this model, for understanding these effects.

I.2. Economic theory and statistical framework

The theoretical model set out in this chapter [Samuelson (1948)] is the most basic version of the Keynesian macroeconomic models, since it will assume that the supply curve of the economy is a horizontal straight line, and, accordingly, there are no changes in prices, and the values of GDP at current prices and of the other macroeconomic variables coincide with their respective values at constant prices. This is a notable simplification, but useful for an initial approach to the stabilising aspects of fiscal policy which we wish to address. It will also be assumed that the national economy has two sectors which group all agents (the private sector and

the public sector), who carry out economic operations among themselves and with the rest of the world to attain their objectives, subject to budget constraints. The public sector is formed by all those agents whose objectives and criteria for decisions are established by the political authorities.

The economic decisions of these agents are reflected in the values of the variables which appear in their budget constraints, and therefore the first step in analysing their behaviour is to study the characteristics of these constraints and their changes over time. In the statistical system used by nearly all countries, budget constraints are the income, use of income and capital accounts of institutional sectors. These accounts will be further simplified by leaving out the less important operations and aggregating others in order to obtain a simple accounting structure, where only the most relevant operations are shown. Such simplifications are useful for a closer understanding of a basic aspect of macroeconomic analysis, namely the relationship that should exist between accounting equilibria and economic equilibria. These are the key concepts that guarantee the internal consistency of the statistical system of data collection and of the theoretical system that studies the behavioural relationships of agents.

The accounting and statistical framework for classifying information pertinent to macroeconomic analysis is the system of national accounts. Although the history of social and national accounting goes back several centuries, a closer reference dates from 1953, the year when the first System of National Accounts of the United Nations (SNA) was published, since used as the basis for unifying the global statistics of nearly all countries. In 1970 the European System of Integrated Economic Accounts (ESA) was published. Based on the SNA, it was adapted to the characteristics and needs of the members of the European Economic Community, providing a consistent and detailed set of accounts and tables with systematic, comparable and, insofar as possible, complete records of the economic activity of European countries. In practice, these records encompass a vast quantity and variety of economic flows between a large number of units and agents residing in the same country or in the rest of the world. The essential function of any system of national accounts is to classify this immense variety of economic agents and flows in a limited number of economic categories. These categories are defined within a general framework to reflect the workings of the economic system in a meaningful way that can be used in economic analysis, forecasting, and evaluations of economic policy decisions. For most European countries, the uniform statistical series for the analysis of fiscal policy begin in 1970. There are of course longer series on general government economic and financial transactions, but they are not integrated in the conceptual framework of the national accounts, nor are they necessarily compiled in a uniform manner. By contrast, the series used here to study the stabilising ef-

DIAGRAM I.1

SIMPLIFIED DIAGRAM OF NATIONAL ACCOUNTS

Private sector		*General government*		*National economy*		*Rest of the world*	
INCOME		INCOME		INCOME		CURRENT OP.	
E	R	E	R	E	R	E	R
TRP COT	EPV RAS TRC	TRC SUB	EPB TRP TPM COT	SUB	E RAS TPM	X	M
YDPV		YDPB		Y			SOCRM
USE OF INCOME		USE OF INCOME		USE OF INCOME			
E	R	E	R	E	R		
CPV	YDPV	CPB	YDPB	CN	Y		
APV		APB		AN			
CAPITAL		CAPITAL		CAPITAL		CAPITAL	
E	R	E	R	E	R	E	R
IPV	APV TRK	IPB TRK	APB	IN	AN	SOCRM	
CNFPV		CNFPB		CNFN		CNFN	
FINANCIAL		FINANCIAL		FINANCIAL		FINANCIAL	
VA	VP	VA	VP	VA	VP	VA	VP
VAPV	VPPV	VAPB	VPPB	VAN	VPN	VPN	VAN
	AFNPV		AFNPB		AFNN	AFNN	

SIMPLIFIED DIAGRAM OF NATIONAL ACCOUNTS: ABBREVIATIONS OF VARIABLES

Y = GROSS DOMESTIC PRODUCT
RAS = COMPENSATION OF EMPLOYEES OF THE NATIONAL ECONOMY
TPM = TAXES ON PRODUCTION AND IMPORTS
SUB = PRODUCTION AND IMPORT SUBSIDIES
E = GROSS OPERATING SURPLUS OF THE NATIONAL ECONOMY
EPB = GROSS OPERATING SURPLUS OF THE PUBLIC SECTOR
EPV = GROSS OPERATING SURPLUS OF THE PRIVATE SECTOR
TRP = CURRENT TAXES ON INCOME AND WEALTH
COT = SOCIAL SECURITY CONTRIBUTIONS
TRC = MISCELLANEOUS CURRENT TRANSFERS OF THE PUBLIC SECTOR TO THE PRIVATE SECTOR
YDPB = DISPOSABLE INCOME OF THE PUBLIC SECTOR
YDPV = DISPOSABLE INCOME OF THE PRIVATE SECTOR
CN = NATIONAL CONSUMPTION
CPB = GOVERNMENT CONSUMPTION
CPV = PRIVATE CONSUMPTION
AN = NATIONAL SAVING
APB = PUBLIC SAVING
APV = PRIVATE SAVING
IN = GROSS CAPITAL FORMATION OF THE NATIONAL ECONOMY
IPB = GOVERNMENT INVESTMENT
IPV = PRIVATE INVESTMENT
TRK = CAPITAL TRANSFERS OF THE PUBLIC SECTOR TO THE PRIVATE SECTOR
X = EXPORTS
M = IMPORTS
SOCRM = BALANCE OF CURRENT OPERATIONS WITH THE REST OF THE WORLD
CNFN = NET LENDING (+) OR NET BORROWING (–) OF THE NATION
CNFPB = NET LENDING (+) OR NET BORROWING (–) OF THE PUBLIC SECTOR
CNFPV = NET LENDING (+) OR NET BORROWING (–) OF THE PRIVATE SECTOR
VPN = CHANGE IN LIABILITIES OF THE NATIONAL ECONOMY
VAN = CHANGE IN ASSETS OF THE NATIONAL ECONOMY
VPPB = CHANGE IN LIABILITIES OF THE PUBLIC SECTOR
VAPB = CHANGE IN ASSETS OF THE PUBLIC SECTOR
VPPV = CHANGE IN LIABILITIES OF THE PRIVATE SECTOR
VAPV = CHANGE IN ASSETS OF THE PRIVATE SECTOR
AFNN = NET FINANCIAL SAVING OF THE NATION
AFNPB = NET FINANCIAL SAVING OF THE PUBLIC SECTOR
AFNPV = NET FINANCIAL SAVING OF THE PRIVATE SECTOR

fects of fiscal policy do offer a greater guarantee of comparability over time and space, because they were jointly estimated in each country under the national accounts methodology (ESA, 2nd edition, 1979).

Any theoretical model that is specified for application to reality should be accompanied by the corresponding accounting model that defines the variables used in the theoretical model, the method of measuring them, and the relationships of internal consistency which they must satisfy (accounting equilibrium). For the theoretical model used here, an appropriate accounting framework is the one presented in Diagram I.1, where all operations not considered essential were eliminated. Also, for the time being, we shall aggregate in a single variable (T) the total revenue or taxes, in the broad sense, of general government (T=TPM + TRP + COT + EPB), and in another variable total net transfers (TR=TRC + SUB + TRK). By consolidating vertically in the above diagram and separately the accounts of the private sector, general government, the national economy and the rest of the world presented in the diagram, we obtain the following budget constraints:

Private sector

$$Y + TR - T - CPV - IPV = CNFPV = VAPV - VPPV \qquad [I.1]$$

Public sector

$$T - TR - CPB - IPB = CNFPB = VAPB - VPPB \qquad [I.2]$$

National economy

$$Y - CPV - CPB - IPV - IPB = CNFN = VA - VPN \qquad [I.3]$$

Rest of the world

$$X - M = VAN - VPM \qquad [I.4]$$

I.3. Behaviour functions

The behaviour functions of the agents are obtained on the basis of the decisions they take in seeking to achieve their objectives, subject to the pertinent budget constraints. For the private sector, the only function that will be included in the model is the consumption function:

$$CPV = A + b \ \ YDPV \qquad [I.5]$$

According to this equation, private consumption depends on a positive constant (A), which is called autonomous consumption, and on the marginal propensity to consume (constant b, which is also assumed to be positive but less than one) multiplied by the private sector's disposable income (YDPV), which is defined in this model by the following account identity:

$$YDPV = Y + TR - T \qquad [I.6]$$

For the public sector, the model will only specify the determination of total revenue (T) as a proportion of GDP (Y):

$$T = t\,Y \qquad [I.7]$$

t being a positive constant and less than one, representing the tax rate, or tax burden in the broad sense.

For purchases of goods and services abroad, the following import function will be assumed:

$$M = m\,Y \qquad [I.8]$$

m being a constant, assumed positive and less than one, called the propensity to import.

The specification of these three behaviour functions completes the depiction of the model. The rest of the variables are considered exogenous. Note that the decisions taken separately by the agents are interdependent: private consumption depends on GDP and on the taxes and transfer payments of the public sector; taxes and imports also depend on GDP, which in turn depends on private consumption. The agents' decisions are therefore mutually dependent, and the analysis of the conditions under which these decisions are compatible with each other is what is known as equilibrium model analysis.

I.4. Existence and uniqueness of equilibrium

The equilibrium condition of this model may be expressed in the known form:

$$Y = CPV + CPB + IPV + IPB + X - M \qquad [I.9]$$

This expression says that the aggregate supply of the economy, represented by GDP (Y) on the left-hand side of the equation, is equal to the aggregate demand of the economy, represented on the right-hand side of the equation by the sum of the demand for private consumption (CPV) and government consumption (CPB), gross capital formation (the sum of private investment IPV and government investment IPB), and net exports (X-M). As an accounting identity, this equation is always verified a posteriori. However, when the variables in this equation are substituted by the behaviour equations that determine the values of these variables in the model, said accounting identity is no longer certain by definition, and it

can only be verified for the equilibrium values that solve the model. Making the pertinent substitutions yields:

$$Y = A + b\,[Y + TR - tY] + CPB + IPV + IPB + X - mY \qquad [I.10]$$

$$Y = A + CPB + IPV + IPB + X + bTR + [b(1 - t) - m]\,Y \qquad [I.11]$$

On the left-hand side of this equation is the supply-side GDP, and on the right-hand side are the components of aggregate demand, according to the model's behaviour equations, having grouped in the last term all the factors that depend on the value of GDP (Y).

Representing the right-hand side of this equation graphically, we obtain an aggregate demand curve of the economy (AD), as shown in Figure I.1, in terms of Y. Note that aggregate demand is a straight line that crosses the vertical axis of the value:

$$DA\,(0) = A + CPB + IPV + IPB + X + bTR \qquad [I.12]$$

This means that, for a hypothetical value of Y=0, aggregate demand would be positive and would take the specific value corresponding to the intersection of the aggregate demand curve and the vertical axis. Also, for positive and increasingly higher values of Y, the aggregate demand curve also takes increasingly higher values, because added to the original value when Y=0 is the effect of the term that depends on GDP: [b(1-t)-m] Y. Thus, when GDP at current prices takes the value Y_1, the aggregate demand of the economy takes the value $AD(Y_1)=A+CPB+IPV+IPB+X+bTR+[b(1–t)–m]\,Y_1$. When Y increases by one unit, AD increases by [b(1–t)–m] units, and thus the slope of the aggregate demand curve is [b(1–t)–m]. In Figure I.1 it was assumed that this slope is greater than zero, although this is not necessarily so, as we shall later see.

In addition, if a straight line with an inclination of forty-five degrees (45º) is drawn from the original point, as the one in Figure I.2, we obtain a graphic depiction of the aggregate supply curve of the economy (AS). This curve is relatively trivial because it only says that, if GDP at current prices (Y, on the horizontal axis) takes a certain value (let's say Y_1), then the aggregate supply of the economy (AS, on the vertical axis, which should have the same scale as the horizontal axis) takes the same value ($AS_1=Y_1$). Note that the slope of this supply curve is exactly equal to one, which means that, if GDP increases to Y_2, the aggregate supply of the economy will also increase by the same amount to $AS^2=Y_2$, i.e. it holds that $Y_2 - Y_1 = AS_2 - AS_1$.

Supply and demand curves may be used to analyse how equilibrium is reached, i.e. a situation in which the supply and demand of the economy are equal and the decisions of all agents are mutually compatible. Be-

FIGURE I.1

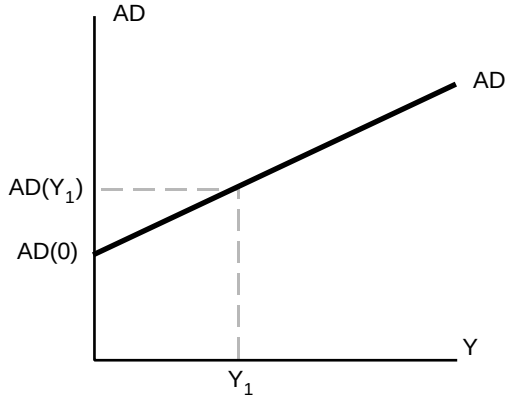


FIGURE I.2

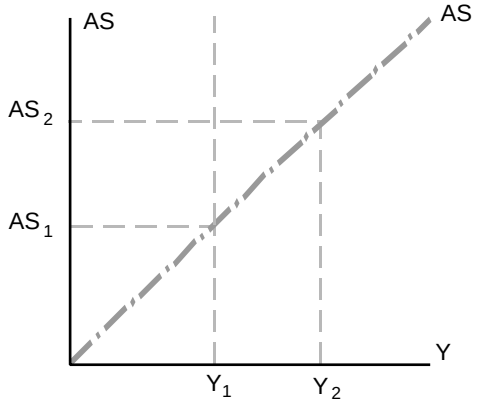
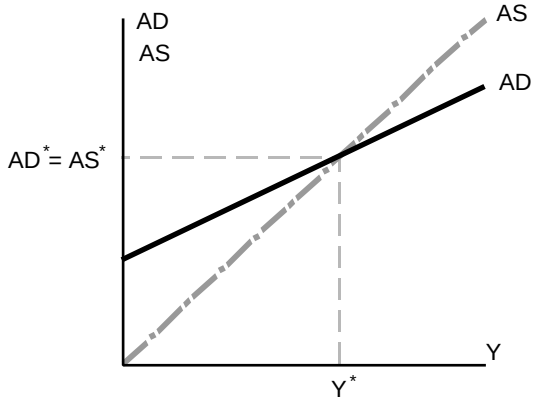


FIGURE I.3



ginning with the graphical examination of equilibrium, the point where aggregate supply and demand are equal is the intersection of the curves of supply (AS) and demand (AD), as shown in Figure I.3, Y* being the equilibrium value resulting from GDP. For values lower than GDP, demand is greater than supply (AD is greater than AS), and for values higher than Y*, demand is less than supply, and thus a disequilibrium of a different sign exists in each case.

From the algebraic point of view, to arrive at the equilibrium value Y*, the value for which the left-hand side and the right-hand side of the equation (I.11) coincide must be found. This is achieved by grouping on the left-hand side the dependent terms of Y, later finding the value of Y*:

$$Y - [b\,(1 - t) - m]\,Y = A + CPB + IPV + IPB + X + bTR$$

$$Y\,[1 - b\,(1 - t) + m] = A + CPB + IPV + IPB + X + bTR$$

$$Y^* = \frac{A + CPB + IPV + IPB + X + bTR}{1 - b\,(1 - t) + m} \qquad [I.13]$$

The conditions for equilibrium to exist in this model, i.e. for the model to have a solution with economic significance, are that the slope of the aggregate demand curve [b(1-t)-m] be less than unity (a condition that is met because it was assumed that the range of variation in the constants b, t and m was the interval encompassed between zero and one), and that the numerator on the right-hand side of the equation [I.13] be positive. Under these conditions, the value of Y* will be positive from the algebraic standpoint, because it is the quotient of two positive numbers, and from the graphical point of view because the aggregate demand (AD) curve will cross the aggregate supply (AS) curve at a positive value. This is guaranteed because the AD curve will start from the vertical axis with a positive value (equal to the right-hand side numerator in [I.13]), and its inclination will be less than that of the aggregate supply curve (which is unity) and will therefore end up crossing it. The same conditions that ensure the existence of equilibrium guarantee that the equilibrium is unique, since the curves of aggregate supply and demand will cross only once because they are straight lines.

In short, the equilibrium equation [I.13], which solves the model proposed in this section, allows us to find the equilibrium value of GDP at current prices once the values of the exogenous variables and the model's parameters are known. Exogenous variables are those whose value is determined outside the model to distinguish them from the endogenous variables, which are determined by the equilibrium relationships within the model. The parameters are exogenous variables of a particular type

that determine the form of the agents' behaviour functions. The variables included in this simple model are the following:

Exogenous variables

A, autonomous consumption of the private sector
IPV, private investment
CPB, government consumption
IPB, government investment
TR, public-sector transfers to the private sector
X, exports of goods and services

Parameters

b, marginal propensity to private consumption
t, tax rate
m, propensity to import

Endogenous variables

Y, gross domestic product
CPV, private consumption
T, public revenue
M, imports
YDPV, gross disposable income of the private sector
YDPB, gross disposable income of the public sector
YDN, gross disposable income of the nation
APV, gross saving of the private sector
APB, gross saving of the public sector
AN, gross national saving
CNFPV, net lending (+) or net borrowing (-) of the private sector
CNFPB, net lending (+) or net borrowing (-) of the public sector
CNFN, net lending (+) or net borrowing (-) of the nation

Therefore, for each set of values that is specified for the exogenous variables and the parameters of the model, equation [I.13] provides the equilibrium value of GDP, which is the basic endogenous variable. Substituting this value in the behaviour equations and in the budget constraints of the sectors formulated earlier, we obtain the equilibrium values of the rest of the model's endogenous variables.

To examine the cyclical fluctuations of the economy and the basic concepts of fiscal policy (multipliers, automatic stabilisers, and cyclical and trend budget balances), a dynamic model is needed. Its structure must incorporate the adjustment processes of the endogenous variables

unleashed as a result of changes in the exogenous variables and parameters of the model. But, before introducing the dynamic adjustment processes in the model proposed, it is important to have a good grasp of the equilibrium's characteristics by performing various exercises in comparative statics. The comparison of the values of the endogenous variables in two different equilibria resulting from changes in the values that are specified for the exogenous variables and parameters of the model is known as comparative static equilibrium analysis. This type of analysis only considers static equilibrium solutions, and does not go into the dynamic process that makes the economy move from one equilibrium state to another, nor does it examine the equilibrium stability conditions.

I.5. Static equilibrium and multipliers

The possible comparative static exercises in this model are of two types: *a)* when an exogenous variable other than a parameter changes, with the other exogenous variables and parameters remaining constant, the intersection of the aggregate demand curve and the vertical axis [value AD(0) in Figure I.1] changes, but the slope of the curve is not altered, thus producing a parallel upward or downward shift in the entire AD curve, with an upward or downward change in the equilibrium value Y*, respectively, and *b)* when a parameter of the model changes, with the other exogenous variables and parameters remaining constant, the slope of the aggregate demand curve changes, giving rise to an increase or a decrease in the equilibrium value Y*.

Looking again at equation [I.12], which determines the AD(0) point where the aggregate demand curve crosses the vertical axis, it can be seen that all the exogenous variables listed above appear as addends. An increase in any of them will cause a parallel upward shift in the AD curve, giving rise to an increase in the equilibrium GDP (Y*); conversely, a reduction in any of these exogenous variables will cause a decrease in the equilibrium GDP. As to the parameters, the slope of the aggregate demand curve, [b(1–t)–m], is found to increase whenever the marginal propensity to private consumption increases (b), and it diminishes when there is an increase in the tax rate (t) or the propensity to import (m). Changes in the parameters in the opposite direction of those considered will of course have contrary effects.

Focusing our analysis on the effects of the variables of fiscal policy, we shall first consider the consequences of an increase in government consumption (CPB). If, starting from an initial equilibrium position (Y1*), determined by a set of specific values of exogenous variables and parameters, the value of government consumption increases from CPB1 to

CPB2, with the initial values of the other exogenous variables and parameters remaining constant, then a new equilibrium (Y2*) is reached. The initial equilibrium was:

$$Y_1^* = \frac{A + CPB_1 + IPV + IPB + X + bTR}{1 - b\,(1 - t) + m}$$

and the final equilibrium will be:

$$Y_2^* = \frac{A + CPB_2 + IPV + IPB + X + bTR}{1 - b\,(1 - t) + m}$$

To determine the change produced in the equilibrium GDP, the second expression is subtracted from the first, yielding:

$$Y_2^* - Y_1^* = \frac{CPB_2 - CPB_1}{1 - b\,(1 - t) + m}$$

an expression in which all the exogenous variables of the numerator, whose value remained constant under the hypothesis, disappear. The change in the equilibrium GDP (Y2* – Y1*) is equal to the hypothetical change in government consumption (CPB2 – CPB1) multiplied by the constant:

$$K_{CPB} = \frac{1}{1 - b\,(1 - t) + m} \qquad [I.14]$$

This constant KCPB is called the government consumption multiplier, because, for the most usual values of the parameters (b, t, m), it is verified that b (1–t) is greater than m, while the denominator of the above quotient is less than one, and, therefore, K_{CPB} is greater than one. In this case, the increase in the equilibrium GDP is a multiple of the increase in government consumption. From the standpoint of the graphical analysis of the equilibrium, Figure I.4 illustrates how the increase in government consumption produces a parallel upward shift in the aggregate demand curve of the economy from the initial AD1 position to the final AD2 position, and therefore it holds that $AD(0)_2 - AD(0)_1 = CPB_2 - CPB_1$, i.e. the vertical distance between both aggregate demand curves is equal to the increase in the hypothetical government consumption. Note, however, that the distance $Y_2^* - Y_1^*$, which represents the increase in the equilibrium income on the horizontal axis, is greater than the vertical distance between the aggregate demand curves.

Following the same steps set out above, it may be deduced that in this model the government investment multiplier, as well as the multipliers of private investment, private autonomous consumption and exports, are

equal to the government consumption multiplier. By contrast, the public-sector transfer multiplier (K_{TR}) is less than all the others and equal to:

$$K_{TR} = \frac{b}{1 - b\,(1 - t) + m} \qquad [I.15]$$

The economic explanation that K_{TR} is less than K_{CPB} lies in the fact that, as will be seen more clearly when analysing the multiplier process with a dynamic focus, direct spending on goods and services by the public sector initially has a more expansionary effect on aggregate demand than do the transfer payments to the private sector.

To conclude this comparative static equilibrium analysis, Figure I.5 shows what the effects of a decrease in the tax rate would be: the slope of the aggregate demand curve would increase, but its intersection with the vertical axis would not change. The initial curve AD_1 and the final AD_2 curve start from the same point, but the latter has a larger slope, causing an increase in the equilibrium GDP, which would move from Y_1^* to Y_2^*. We shall not analytically deduce the impact of the changes in the parameters on the equilibrium GDP. It will suffice to bear in mind the graphic depiction in Figure I.5 to recall the qualitative effects of these changes, especially those in the fiscal policy variables.

I.6. The dynamic multiplier process and equilibrium stability

As noted, after examining the public spending multipliers in the framework of comparative statics, an analysis of their dynamics requires specifying the characteristics of the adjustment process that allows moving from one equilibrium position to another. Recall that, in the model studied here, it was assumed that prices would not change, but rather the aggregate supply of the economy was perfectly elastic and aggregate demand automatically determined the aggregate supply of goods and services. This drastic hypothesis may be understood as an extreme case in which the prices of the economy are very rigid in the short run (the assumption is in fact that they remain fixed), whereas all the adjustments induced by the changes in aggregate demand are integrally passed through to the amounts and, therefore, to the aggregate supply and the level of economic activity. In accordance with this hypothesis, it is assumed in the analysis by stages of the dynamic process explained below that supply adjusts in each stage to the level determined by demand.

Consider the adjustment process between the initial equilibrium and the final equilibrium examined earlier when setting out the consequences of an increase in public consumption. Starting from the initial equilibrium,

FIGURE I.4

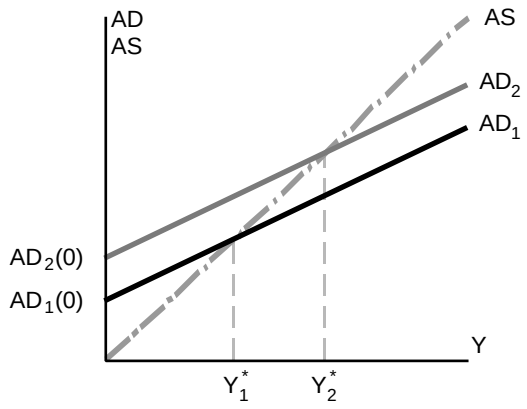
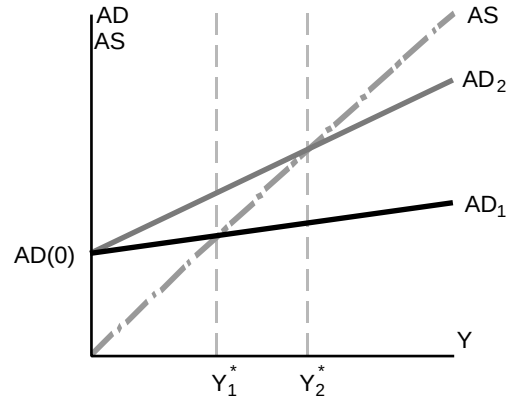


FIGURE I.5



the government decides to raise expenditure on current goods and services by 100 monetary units, with the other exogenous variables and parameters of the model remaining constant. The immediate consequence (in the first stage) of this increase in public spending will be an increase of the same amount in aggregate demand, which will be automatically passed through to aggregate supply, and therefore GDP will increase by 100 monetary units. But the adjustment process does not stop here.

In this first stage, as a result of the increase in GDP, there will be an increase of 100 – 100t = 100 (1–t) in the disposable income of consumers, 100t being the additional taxes received by the general government sector due to the increase in GDP, as seen in the first line of Diagram I.2. In addition, since the disposable income of consumers has

risen, consumers will increase their consumption by b[100(1–t)], where b is the marginal propensity to consume. This higher consumption has a further expansionary effect of a magnitude b[100(1–t)] on aggregate demand. However, part of the initial growth in aggregate demand will not result in an increase in domestic production, but will be filtered towards imports, which will expand in a proportion of m with respect to the increase in GDP, as shown in the last column of Diagram I.2. Therefore, at the end of the first stage, GDP will have in fact increased by the amount that private consumption, [100(1–t)]b, has grown, less the amount by which imports have increased, 100m, i.e. 100[b(1–t)–m], with a second stage -analogous to the first- then beginning.

It should be noted that the increases in GDP (ΔY) of aggregate demand (ΔAD), public revenue (ΔT), private-sector disposable income (ΔYDPV), private consumption (ΔCPV) and imports (ΔM), which take place in the second stage and appear in the second line of Diagram I.1, are all equal to those reflected by each of these variables in the first stage (first line of Diagram I.2), but multiplied by a constant p=b(1–t)–m, which is precisely the slope of the aggregate demand curve. Thus, for instance, GDP will increase by 100p at the end of the first stage, by $100p^2$ at the end of the second, and so on in a logical infinite process. Therefore the total increase in GDP will be:

$$\Delta Y = 100 + 100p + 100p^2 + 100p^3 + \ldots = 100\,(1 + p + p^2 + p^3 + \ldots) \qquad [I.16]$$

The series of increases which appear in brackets on the right-hand side of the expression [I.16] will have a limit whenever the value of the constant p is less than one (and greater than minus one), because in this case p^2 is greater than p^3, p^3 is greater than p^4, and so forth, and thus the increases reflected in GDP in each of the logical stages discerned in the process will be increasingly smaller. As a result, the series of increases in GDP will have a limit whenever the slope (p) of the aggregate demand curve is less than one (in absolute terms), this being the stability condition of the model for the dynamic adjustment process which was defined. It can now be concluded that the condition for the model's equilibrium to exist and to be unique and stable is that its parameters (b, t, m) have values which determine a slope in the demand curve of less than one (and greater than minus one).

Figure I.6 illustrates this dynamic adjustment process, which allows moving from the initial equilibrium (Y*1) to the final equilibrium (Y^*_2) as a consequence of the increase in government consumption. The initial effect of this increase is, as seen above, a parallel upward shift in the aggregate demand curve from AD_1 to AD_2, 100 being the vertical distance between both curves (indicated by the first line on the left between AS and AD_2), which is the magnitude of the increase in government

DIAGRAM I.2

DYNAMIC ANALYSIS OF THE GOVERNMENT CONSUMPTION MULTIPLIER

$\Delta Y = \Delta DA = \Delta CPV - \Delta M$	$\Delta T = t\Delta Y$	$\Delta YDPV = \Delta Y - \Delta T$	$\Delta CPV = b\ \Delta YDPV$	$\Delta M = m\Delta Y$
100	100 t	100 (1–t)	100 (1–t) b	100 m
$100[b(1-t)-m]$	$100[b(1-t)-m]t$	$100[b(1-t)-m](1-t)$	$100[b(1-t)-m]b(1-t)$	$100[b(1-t)-m]m$
$100[b(1-t)-m]^2$	$100[b(1-t)-m]^2t$	$100[b(1-t)-m]^2(1-t)$	$100[b(1-t)-m]^2b(1-t)$	$100[b(1-t)-m]^2m$
$100[b(1-t)-m]^3$	$100[b(1-t)-m]^3t$	$100[b(1-t)-m]^3(1-t)$	$100[b(1-t)-m]^3b(1-t)$	$100[b(1-t)-m]^3m$
…	…	…	…	…
…	…	…	…	…
…	…	…	…	…
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…	…	…	…	…
100	100 t	100 (1–t)	100 b (1–t)	100 m
$1-[b(1-t)-m]$	$1-[b(1-t)-m]$	$1-[b(1-t)-m]$	$1-[b(1-t)-m]$	$1-[b(1-t)-m]$

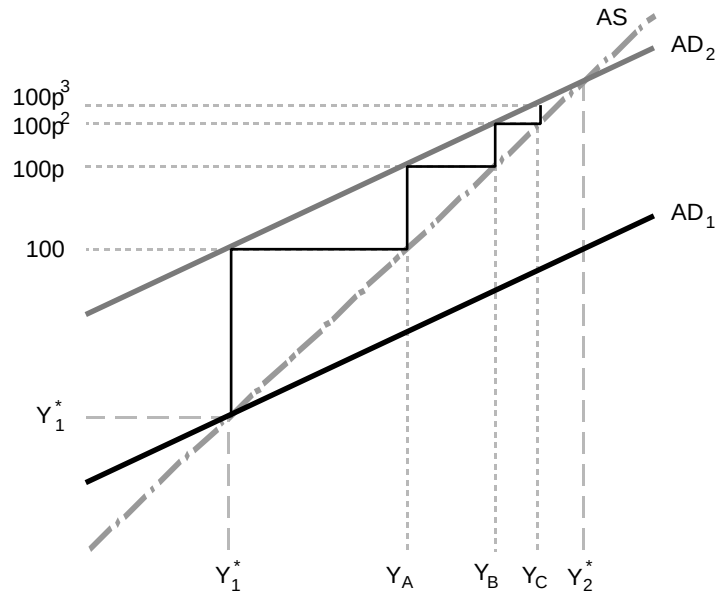
spending. With the new aggregate demand, if GDP were to remain constant at its initial value Y^*_1, there would be an excess in demand of exactly the 100 units by which government consumption increased. But, following our hypothetical adjustment rule, GDP in real terms will adjust upwards (with prices remaining invariable) to absorb this excess demand of 100, moving from Y^*_1 to $Y_A = Y^*_1 + 100$.

However, when GDP reaches Y_A, there is still an excess of aggregate demand (the AD_2 curve is above AS in the vertical line drawn over point Y_A), because the increase of GDP to Y_A has induced a rise in the disposable income of consumers (even though part of the increase in gross income is absorbed by taxes) and greater private consumption. The excess demand which subsists will be 100 p (this being the vertical distance plotted by the second step), and it will correspond to the induced increase in private consumption 100 b(1–t), minus the portion of national demand that filters abroad by expanding the imports 100m; i.e. $100p=100[b(1-t)-m]$. Following the adjustment rule assumed for the dynamic process, GDP will now grow to $Y_B=Y_A+100p=Y^*_1+100+100p=Y^*_1+100(1+p)$.

This dynamic process of the multiplier will continue until GDP has reached a new equilibrium value:

$$Y^*_2 = Y^*_1 + 100\ (1 + p + p^2 + p^3 + \ldots) = Y^*_1 + 100\left(\frac{1}{1-p}\right) \qquad [I.17]$$

FIGURE I.6



Note that the equality of the terms which appear in brackets in the expression [I.17] establishes the link joining the static multiplier of government consumption and the dynamic process that has just been studied. Thus:

$$1 + p + p^2 + p^3 + \ldots = \frac{1}{1 - p}$$

because:

$$(1 - p)\,(1 + p + p^2 + p^3 + \ldots) = 1 - p + p - p^2 + p^2 - \ldots = 1$$

Therefore, on the basis of expression [I.17], we can write:

$$Y_2^* - Y_1^* = \frac{100}{1 - p} = \frac{CPB_2 - CPB_1}{1 - [b\,(1 - t) - m]} \qquad [I.18]$$

this being the formula that was obtained by deducting the static multiplier from government consumption.

Before concluding this analysis of the public spending multipliers, three observations are in order. The first refers to the explanation of why

the transfer multiplier is less than that of government consumption and investment. If we review the description of the dynamic process of the multiplier, we see that the initial impact of an increase in direct public spending on goods and services is passed on integrally to GDP. By contrast, if the transfers were increased by the same amount that government consumption was assumed to rise (by 100 monetary units), the initial increase in aggregate demand (and in GDP) would not be 100, but only 100b, because the private sector will spend on consumption only a part b of the increased transfers which it receives. It follows that the multiplier effect of the transfers is equal to this same part b of the multiplier effect of direct general government spending on goods and services.

The second observation is that the multipliers which were obtained from the model depend on the specific hypotheses which were formulated to define it. This observation is important, because, in speaking of fiscal policy multipliers, it should always be borne in mind that their values depend on the structure of the model used.

The third observation is that the model's stability condition, which may be expressed by saying that the elasticity of the aggregate demand curve with respect to GDP must be less than one, may also be used to define the stabilising or destabilising nature of the components of aggregate demand. Consumption, investment and exports help to stabilise aggregate demand if their elasticity with respect to GDP is less than one. By contrast, imports, since they enter by subtraction in the calculation of aggregate demand, will have a stabilising influence on aggregate demand if their elasticity with respect to GDP is greater than one. An alternative way of expressing these same definitions without using the concept of elasticity is to say that consumption, investment and exports will have stabilising effects if their weight with respect to output declines when output increases and vice versa. Imports will have stabilising effects if their weight in output increases when output increases and vice versa.

I.7. Automatic stabilisers and cyclical and trend budget balances

To introduce the analysis of the economy's cyclical fluctuations and the concepts of automatic stabilisers of the trend budget balance and the cyclical budget balance, it will first be provisionally assumed that government consumption and investment are equal to zero in the previous model (CPB=0;IPV=0). Hence the general government budget constraint:

$$CNFPB = T - TR = tY - TR \qquad [I.19]$$

In Figure I.8, this budget constraint is shown for a given level of transfers TR, which will remain constant. When it is assumed that Y = 0, then CNFPB = –TR. Therefore the intersection of the straight line representing the budget constraint [I.19] will cross the vertical axis in the value –TR. When Y has positive values, the taxes T = tY are greater than zero, and they grow as Y grows, in a proportion of t, which is the slope of the straight line CNFPB.

In Figure I.7, on the one hand a straight line (Y) is shown that starts from the original point and has an inclination of 45^o. On the horizontal axis the values taken by GDP are measured and, via this straight line of 45^o, said values may be moved to the vertical axis. The function of the straight line Y in this figure is therefore analogous to that of the aggregate supply curve in the previous figures. On the other hand, the same figure shows the straight line YDPV which corresponds to the equation that defines in the model the determination of private-sector disposable income:

$$YDPV = Y + TR - T = Y(1 - t) + TR \qquad [I.20]$$

When Y=0 is assumed, then YDPV=TR, and thus the intersection of the straight line YDPV with the vertical line occurs at the value TR, which was assumed to be given and constant. As Y grows, the private sector's disposable income increase in a proportion of (1–t), i.e. for each unit that GDP increases, private-sector disposable income increases by this unit minus the proportion t which the general government sector collects as taxes. Therefore, the slope of the straight line YDPV is (1–t). At the point where the 45^o and the YDPV lines cross, it is verified that TR=T=tY*, although the compliance of this equation is neither a necessary condition nor sufficient for the model's equilibrium.

Assuming now that the average equilibrium value of GDP over time is Y*, this GDP value corresponds, as seen in Figure I.8, to a budget equilibrium situation, in which CNFPB*=0, with general government transfers to the private sector equal to the exact amount collected in taxes TR=tY*. Consequently, as seen in Figure I.7, for average GDP equilibrium Y*, the disposable income of the private sector takes this same average equilibrium value: YDPV* = Y*. Therefore, if GDP were to remain constant at value Y* over time, the budget balance would always be balanced and the private sector's income would permanently coincide with the GDP equilibrium value. From a macroeconomic perspective, that is, ignoring the redistribution and efficiency effects derived from the fact that those paying taxes and those receiving transfers are not the same people, the role of general government is practically nil in this specific case of the model, in which there is no government consumption or investment, and equilibrium GDP coincides with the value that balances government revenue and expenditure.

FIGURE I.7

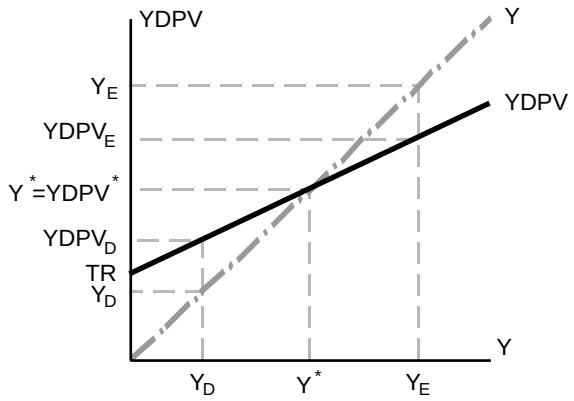
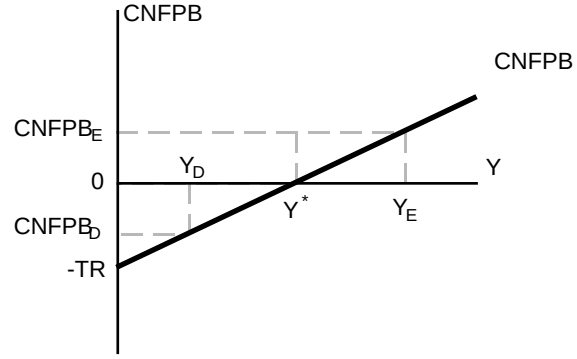


FIGURE I.8



However, if it is assumed that GDP may fluctuate over time following a cyclical pattern around its average equilibrium value Y*, it is possible to understand the significance of automatic stabilisers in smoothing fluctuations in private-sector disposable income. Suppose that, due to some cause exogenous to the economy (cyclical swings in international markets that cause similar swings in the level of exports, for instance), GDP fluctuates continually and uniformly, reaching a maximum value YE in periods of expansion and a minimum value YD in periods of depression, as shown in Figure I.7.

At the peak of a cyclical upturn, when GDP reaches value Y_E, private-sector disposable income will not exceed the value $YDPV_E$, because taxes will grow with GDP but transfers will remain constant, leading to the

emergence of a cyclical balance with a surplus ($CNFPB_E$ is greater than zero). Symmetrically, when the trough of a depression is reached and GDP reaches the value Y_D, private-sector disposable income will have declined to a lesser extent (stopping at the value $YDPV_D$), because taxes will be reduced with the fall in GDP, and, since transfers remain constant, the cyclical budget balance will reflect a deficit ($CNFPB_D$ is less than zero, as seen in Figure I.8).

These cyclical fluctuations over time are depicted schematically in Figures I.9 and I.10. Figure I.9 shows the trends in GDP (on the broken line Y) and private-sector disposable income (on the solid line YDPV) over a typical cycle, illustrating the lesser cyclical impact of the swings on disposable income than on GDP. Figure I.10 depicts the trends in the cyclical budget balance over this typical cycle. Note that the fluctuations of CNFPB conform to those of Y and of YDPV, and thus the cyclical budget balance will tend towards a surplus in expansion phases and towards a deficit in periods of depression. But note too that, because the budget is balanced by assumption when GDP takes its average equilibrium value, the budget disequilibria associated with the business cycle will tend to be offset over time. The budget balance obtained when GDP takes its trend equilibrium value (in this case Y*) is called the trend budget balance. In this respect, in the example analysed here, the trend budget balance (CNFPB*) can be said to be balanced.

If, starting from the example described, public expenditure on consumption or investment, which had been assumed to be nil, is increased, with all other things remaining constant, the straight line CNFPB that appears in Figure I.8 will shift in parallel downwards from $CNFPB_1$ to $CNFPB_2$, as shown in Figure I.11. The budget will then reflect a trend deficit whose value will be the same as the amount of the hypothetical increase in public expenditure. The new straight line $CNFPB_2$ will cross the vertical axis in the value –CPB–IPB–TR and will have the same slope (t) as the previous one, since the tax rate will not have varied. The vertical distance between both straight lines is CPB+IPB and, in the new situation, when GDP takes its average equilibrium value Y*, the trend budget balance will be negative (CNFPB* is now less than zero).

With the new hypotheses on public expenditure, the cyclical budget balance will reflect as before a surplus in expansion phases and a deficit in periods of depression. But now the total or effective budget balance will only reach a surplus in the period of maximum expansion in GDP, as seen in Figure I.12, and this will not suffice to offset the greater budget deficits recorded in periods of depression.

FIGURE I.9

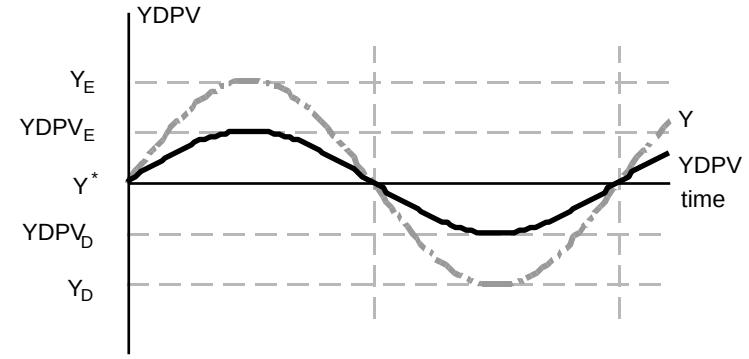
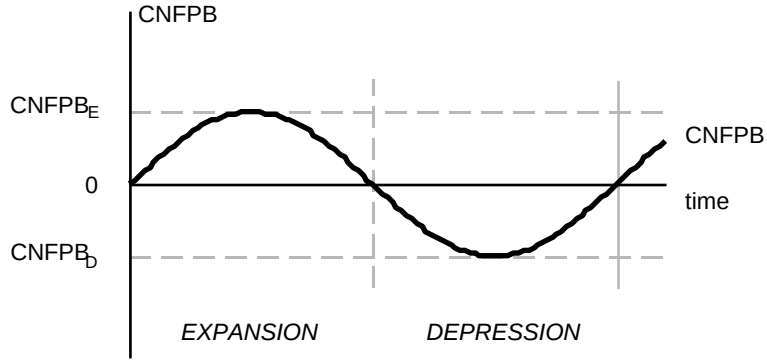


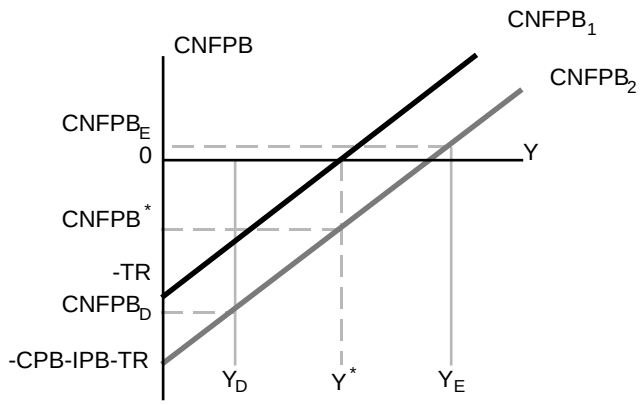
FIGURE I.10



I.8. Definition of the stabilising effects of fiscal policy

As already noted, general government performs two main functions in the economy: the redistribution of income and national wealth, through taxes and transfers, and the provision of non-market services for the community, through investment and consumption expenditure. In its income redistribution function, fiscal policy has stabilising effects if, through the tax and transfer system, it ensures that private-sector disposable income fluctuates over the business cycle to a lesser degree than national income, i.e. if it smooths the fluctuations in private-sector disposable income, helping to support it in recessive phases and to limit its growth in expansionary phases. In its function as a provider of non-market services

FIGURE I.11

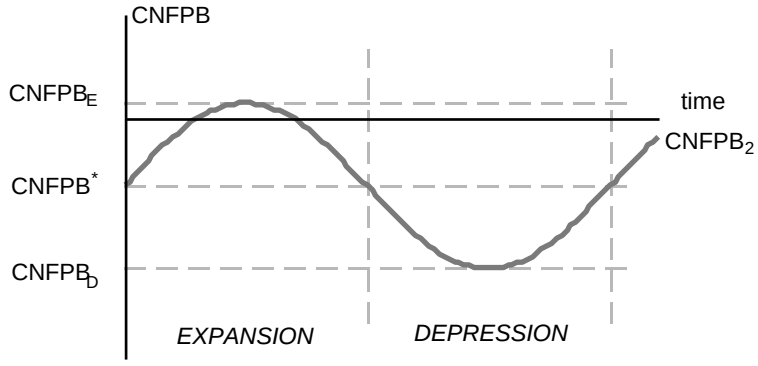


for the community, fiscal policy has stabilising effects if, through general government investment and consumption, it ensures that national demand fluctuates over the business cycle less than private-sector demand, helping to support national demand in recessions and to limit its growth in expansions.

To elucidate this notion of the stabilising effects of fiscal policy, the case of personal income tax may be considered. This tax has a stabilising effect on disposable income (after tax) if the latter fluctuates to a lesser extent than initial income (before tax). The effect occurs when the tax is progressive, i.e. when its elasticity with respect to initial income is greater than one or, in other words, when the average tax rate increases with initial income: both are alternative characterisations of the concept of tax progressivity. Either of these two characterisations may be applied to macroeconomic analysis to define the stabilising effects of public revenue on private-sector disposable income. Besides affecting private-sector disposable income through public revenue (and transfer payments), fiscal policy also affects aggregate demand in the economy through general government consumption and investment expenditure. To define the stabilising effects on aggregate demand a formula analogous to the above formula for revenue is used: public expenditure on goods and services has a stabilising effect on aggregate demand if its elasticity with respect to output is less than one or, in other words, if its weight with respect to output diminishes as the latter increases and vice versa.

Accordingly, the following definition may be formulated: public revenue has stabilising (neutral or destabilising) effects if its weight in output

FIGURE I.12



is an increasing (constant or decreasing) function of output; public expenditure has stabilising (neutral or destabilising) effects if its weight in output is a decreasing (constant or increasing) function of output; the budget balance (revenue less expenditure) has stabilising (neutral or destabilising) effects if its weight in output is an increasing (constant or decreasing) function of output.

Formally, the above definition may be generalised as follows. Let V(Y) be an arbitrary differentiable function expressing the dependence of any variable V on the level of output Y. Differentiating the average function (V/Y) with respect to Y yields:

$$d\,(V/Y)/dY = (V' - V/Y)\,(1/Y) = (\varepsilon - 1)\,(V/Y)\,(1/Y) \qquad [I.21]$$

where V' is the derivative dV/dY and $\varepsilon = (dV/dY)(Y/V)$ is the elasticity of V with respect to Y. The stabilising effects of variable V depend on the sign of the derivative [I.21]. The term (V'-V/Y) will be called the *cyclical sensitivity* of variable V with respect to output Y, and as Y>0, the stabilising effects of V depend on the sign of its cyclical sensitivity, which is equal to the product of the value of V/Y and its elasticity less one. Consequently, if V represents an item of public revenue or the budget balance, it will have stabilising, neutral or destabilising effects, according to whether its cyclical sensitivity is positive, nil or negative. If V represents an item of expenditure (public or private), it will have stabilising, neutral or destabilising effects, depending on whether its cyclical sensitivity is negative, nil or positive. Hereafter, we shall speak of the cyclical sensitivity of a variable and its stabilising effect without distinction.

Before explaining the method which we shall use to estimate the stabilising effects of fiscal policy, two warnings should be given regarding its interpretation. First, it must be pointed out that according to the above definition the stabilising effects of public revenue and expenditure do not depend on the level of these variables, but on the changes therein relative to the changes in the level of economic activity. Consequently, the stabilising capacity of fiscal policy is independent of the average level of the budget balance over the business cycle. Second, it should be noted that according to this definition the stabilising effect of a variable is always relative to the fluctuations observed in the level of economic activity. Such effect says nothing about the scale of the fluctuations or their long-run trend. Thus, for instance, a tax may stabilise private-sector disposable income in relation to fluctuations in initial income without this implying stabilisation of initial income over time, in the same way that a progressive tax may redistribute income, making the distribution of disposable income more equal than that of initial income, without this guaranteeing that initial income will be distributed more equally in the future. In the same vein, government consumption, for example, may help to smooth fluctuations in aggregate demand in the current period, without affecting the causes of such fluctuations in the level of aggregate demand in the future.

The stabilising effects of fiscal policy as defined here are a characteristic of the economy's equilibrium that is reflected in the adjustments in fiscal variables in relation to the fluctuations in real output, i.e. in a relationship between endogenous variables. If an exogenous source of instability is assumed to exist, the dynamic equilibrium of the economy may follow an unstable or explosive path, and at the same time fiscal policy may have stabilising effects in each period. As our purpose here is to study the stabilising effects of fiscal policy in the framework of macroeconomic equilibrium, it may be useful to give one last, complete and simple example of the stabilising effects that can be expected to be observed in a stationary equilibrium and in an unstable equilibrium.

Let us take an economy in which the private consumption function is $C = 0.8\ (Y-T)$, the investment function is $I = 0.2Y$ and the imports function is $M = 0.2Y$. Exports (X) are exogenous, as are public expenditure (G) and revenue (T), which are assumed to be constant and equal ($G = 10 = T$). The budget balance will therefore always be balanced. If exports are assumed to fluctuate (with the income of the rest of the world, for instance) between 16 and 20 around an average of 18, the output of the economy will fluctuate between 90 and 110, and despite the nil cyclical sensitivity of the budget balance, this is the result of public expenditure with stabilising effects on aggregate demand (because this expenditure reflects negative cyclical sensitivity) and of public revenue with destabilising effects

on private-sector disposable income (because it also reflects negative cyclical sensitivity of the same magnitude as that of expenditure). In this economy, exports are by assumption the destabilising element that induces GDP cycles, but private consumption also contributes to destabilise equilibrium, whereas investment and imports are neutral, and public expenditure is the only stabilising element that smooths the fluctuations in output. Note that the origin of the pro-cyclical change in the weight of private consumption in output lies in the destabilising influence exerted by the constant tax on private disposable income, because the hypothetical consumption function has unitary consumption elasticity with respect to private-sector disposable income. It is easy to check that the cyclical fluctuations in GDP around their average are 10 %, as are those in investment and imports, whereas the fluctuations in exports and private consumption – like those of disposable income – are somewhat more than 11.1 %.

To illustrate the existence of the stabilising effects of fiscal policy in an economy on a path of unstable equilibrium, the above example may be enriched by explicitly introducing a dynamic structure. The easiest method is to assume that investment has an accelerator mechanism of the type incorporated in the following investment function, dependent on lagged private consumption:

$$I = 0.2Y + a\,[C - C(-1)] \qquad [I.22]$$

where a is the accelerator coefficient and C(–1) is the previous year's private consumption. The equilibrium output continues to depend on the value of exports ($Y^* = 5X + 10$) and is not affected by the new form of the investment function, which is only relevant for the dynamic adjustment outside the equilibrium position, because the accelerator coefficient a only begins to function when current consumption C differs from the previous year's consumption C(–1). With this new investment function, the shift from one equilibrium position to another is not instantaneous or automatic, but follows a dynamic process governed by the equation in first differences:

$$Y = [(X+2)/(0.2 - 0.8a)] - [0.8a/(0.2-0.8a)]\,Y(-1) \qquad [I.23]$$

The stability or convergence of the dynamic process depends on the values of the accelerator and the multiplier (which in this example is 5), because it is necessary for the coefficient of Y(–1) in the expression [I.23] to be less than one. Therefore the process will be convergent if a is less than 0.125, but if a is equal to 0.125 the process will be stable, generating a cycle of constant amplitude around the equilibrium, and if a is greater than 0.125 the process will be divergent, generating cycles of increasing amplitude around the equilibrium.

Assuming a = 0.15 and starting from the initial equilibrium with X = 18 and Y = 100, exports increase to X = 20, and the new equilibrium Y = 110 cannot be attained, and instead the economy will fluctuate around this new equilibrium with increasingly ample cycles. In this case, only the limited elasticity of supply and the growing external imbalance would be capable of restraining the explosive fluctuations in aggregate demand. However, the instability of aggregate demand could be allayed if fiscal policy were able to stabilise the fluctuations in private-sector disposable income, reducing the value of the multiplier until its interaction with the hypothetical accelerator (a = 0.15) makes the dynamic process governing the economy's adjustment converge between the two equilibria.

If the tax system is changed, substituting the fixed tax by a progressive tax of the type

$$T = 0.2Y - 10 \qquad [I.24]$$

the value of the multiplier will be reduced to (1/0.36), a little more than half its previous value. The equilibrium value of output will now be Y = (18 + X)/0.36, and assuming X = 18, the result is Y = 100. If exports increase to X = 20, the new equilibrium will be approximately Y = 105.56, and the dynamic adjustment process will be governed by the equation

$$Y = [(18 + X)/(0.36 - 0.64a)] - [0.064/(0.36 - 0.64a)]\, Y(-1) \qquad [I.25]$$

and will be convergent. The budget balance, which was initially balanced, will reflect a slight surplus in the new equilibrium and will record pro-cyclical fluctuations in the convergence process, characterised by cycles of decreasing amplitude. If the positive and negative shocks to exports are altered over time, as assumed in the first example, the economy will follow a convergent cyclical pattern whose development may be very complex. Note, however, that the dynamic adjustment process in this new economy will be divergent if the accelerator becomes greater than 0.28125. In this case, fiscal policy helps to stabilise private-sector disposable income and aggregate demand in each period, but the fluctuations in these variables are of increasing amplitude and follow an unstable path, which will only be restrained by restrictions not formally included in the model, such as supply or external sector constraints. It may therefore be concluded that the existence of stabilising effects in an economy in each period does not presume that the economy's behaviour will remain convergent or explosive over time.

In the theoretical analysis of the stabilising effects of fiscal policy a distinction is easily made between discretionary effects, produced by a change in the variables controlled by the authorities (for instance, the substitution of a fixed tax by a progressive tax in the example just given),

and automatic effects that occur because of fluctuations in the level of economic activity, with the variables controlled by authorities remaining constant. Nonetheless, in applied analysis it is very difficult, if not impossible, to separate the two types of effect. Here our thesis is that the stabilising effects of fiscal policy, whether discretionary or automatic in origin, are reflected in the fluctuations actually observed in fiscal variables with respect to fluctuations in output, and that they may be identified and estimated through a simple statistical procedure, which is set out in the next section, although this procedure does not tell us their origin or their transmission mechanism.

This study is concerned with the effects produced by the adjustments in fiscal variables in the short run. It does not analyse the impact of such adjustments on future economic growth or on its fluctuations, nor does it address the problem of the sustainability of the fiscal policies applied. Broadly speaking, fiscal policy is understood to have stabilising effects on the business cycle if the changes observed in general government revenue and expenditure help to smooth the influence of the business cycle on private-sector disposable income and on the aggregate spending of the national economy. This notion of a stabilising fiscal policy differs from the policy associated with discretionary interventions by the authorities to ensure that the economy remains permanently on a desired path.

If economies functioned in the manner of an automatic mechanism, responding predictably to economic policy measures, it would not only be possible to smooth cyclical fluctuations but to eliminate them altogether. It is now generally accepted that this is not an attainable objective, and economic theory has created models showing us that cyclical fluctuations are a consequence of the rational behaviour of economic agents rather than an undesired deviation from a path of stable equilibrium. Cyclical fluctuations of the level of economic activity may at the same time be a property of its dynamic equilibrium and, nonetheless, have undesirable consequences from a social or political point of view, just as a competitive equilibrium may imply unequal income distribution according to certain criteria. Fiscal policy may attempt to modify these undesirable features of an economy by following a set of more or less discretionary criteria and rules of conduct, which private agents will bear in mind, viewing them as restrictions, when taking decisions to attain their own particular objectives. This study seeks to find out whether the criteria and rules of conduct guiding the authorities in the performance of their functions, in combination with the decisions of other economic agents and with exogenous factors of all kinds, have had stabilising effects on the fluctuations actually observed in economic growth. It will not examine what these criteria or rules were at any given time, nor whether their application was automatic or discretionary: its aim is solely to find out what the results were.

I.9. Method of estimating the stabilising effects of fiscal policy

The basic series for estimating the stabilising effects of fiscal policy are those of current values of the variables which appear in the general government accounts, expressed as percentages of GDP at current prices. Two things are achieved by taking these ratios as a reference: *a)* the magnitudes of the fiscal policy at current prices are deflated by the GDP deflator (v = V/p), and *b)* these deflated magnitudes are expressed in terms of their weight with respect to GDP at constant prices (v/y). In this study the cyclical sensitivity of the variables will be estimated directly from the national accounts series, applying the definition set out in the previous section. The equation to be estimated is obtained by expressing the cyclical sensitivity of a variable V, defined in the expression [I.21], as follows:

$$d\,(V/Y) = (V' - V/Y)\,(dY/Y)$$

To estimate the cyclical sensitivity the following approximation is used:

$$d\,(V/Y) = (V/Y) - (V_{-1}/Y_{-1}) = (v/y) - (v_{-1}/y_{-1})$$

i.e. the dependent variable of the equation to be estimated will be the annual change in the weight with respect to output of variable V, whose cyclical sensitivity it is wished to evaluate. It can thus be said that the annual change in the nominal variable V, deflated by the GDP deflator (p), and expressed as a percentage of GDP at constant prices (y), is the dependent variable of the equation to be estimated, which will be considered a function of GDP at constant prices v = v(y). Consequently, the independent variable of the equation will be the rate of change of GDP at constant prices:

$$d\,Y/Y = (y - y_{-1}) / y_{-1}$$

In correlating the change in the weight of a «real» variable (v=V/p) in "real" GDP (y) with the rate of change of «real» GDP, we are estimating the real cyclical sensitivity of this variable and not its nominal cyclical sensitivity, although said variable in nominal terms (V) depends on nominal GDP (Y). To illustrate the difference between the real and nominal cyclical sensitivity of a variable, we may examine the combined effect that the progressivity of income tax and inflation exert on the estimation of the real cyclical sensitivity of this tax (see Figure I.13). Let us assume the tax is levied on nominal income ($T = A + bY$, $A<0$, $0<b<1$) and that the latter increases from Y_0 to Y_1, partly as a result of the growth in prices from p_0 to p_1 and partly due to the increase in real income from y_0 to y_1. The tax rate goes from t_0 to t_1. If the tax were only levied on the increase in real income, the tax rate would go from t_0 to t_r, because income at constant

prices rose from p_0y_0 to p_0y_1. The increase in the tax rate from t_r to t_1 is due to the combined influence of tax progressivity and inflation. If the increase observed in the average tax rate (t_1–t_0) were correlated with the relative increase in nominal income (Y_1–Y_0)/Y_0, we would be estimating the nominal cyclical sensitivity of the tax, defined by the function T. If, instead, it were correlated with the rate of change in real income (y_1–y_0)/y_0, we would be estimating the real cyclical sensitivity of the tax, defined implicitly by the straight line T^{est} (1), which is greater than the nominal, due to the increase in the tax rate that induces inflation through the progressivity of the tax. The "real" weight of the tax went from t_0 to t_1, while "real" income went from y_0 to y_1. The fact that part of this change may be explained by the effect of inflation, rather than by a change in the tax regulations, for instance, will not be taken into account in estimating the real cyclical sensitivity of this variable, nor will a distinction be drawn between automatic and discretionary changes in fiscal policy.

In short, the equation used to estimate the cyclical sensitivity of a variable V will be of the type::

$$(v/y) - (v_{-1}/y_{-1}) = \alpha\,[(y - y_{-1})/y_{-1}] + C + u$$

α being the estimated cyclical sensitivity coefficient, C a constant and u the error term. Both the dependent and the independent variables so defined can be expected to be stationary. The main reason for estimating the cyclical sensitivity of a variable directly, instead of its elasticity with respect to GDP, lies in the fact that such sensitivity expresses the relationship between the changes in this variable as percentages of GDP and the real rate of growth of output; therefore, the cyclical sensitivities of different variables may be added and subtracted, which is not possible with elasticities. This additivity characteristic is useful insofar as it makes it easy to express the cyclical sensitivities of the aggregates and balances in terms of the cyclical sensitivities of their components, preserving the accounting relationship which exists between the original series in the national accounts framework and thus facilitating the interpretation of the relative stabilising effects of the different variables.

To place the analysis of the stabilising effects of fiscal policy in the proper context, it is necessary to consider the problems of economic growth and the economic policy decisions taken by governments to cope with these problems and to attain their objectives. To this end we shall describe in broad strokes what these problems have been and the stabilisation policies taken in the countries studied. The development of busi-

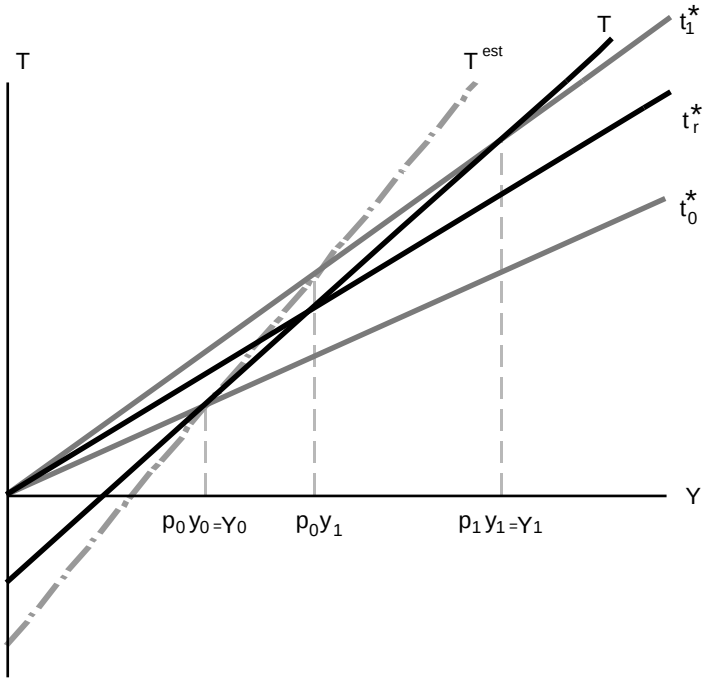
(1) T^{est} is the line that goes through the point of the line t_0*, which corresponds to the value p_0y_0 of the horizontal axis, and through the point of the line t_1*, which corresponds to the value p_0y_1 of the horizontal axis.

ness cycles is related to the changes in the structure of demand, which in turn depend on the changes in the distribution of national income. Accordingly, the cyclical adjustments in income and in consumption and investment expenditure by sector are ultimately reflected in the relationship between their net lending or net borrowing and the growth of the economy. The dynamics of the business cycle are basically associated with fluctuations in private investment, which expands aggregate demand in upturns and contracts it in downswings. The reactions of the other components of demand tend to perform the function of offsetting or stabilising the fluctuations in private investment. Thus the relative weight of investment in national demand increases during expansion phases, at the expense of the weight of private and government consumption. Considering the internal composition of GDP from the viewpoint of demand, when the expansion of the relative weight of investment is not totally offset by the contraction of the relative weight of consumption (or that of exports, which is generally not very sensitive to the domestic cycle), the relative weight of imports in output adjusts to cover the difference.

Briefly stated, private-sector decisions to increase real investment in a cyclical upturn may be financed by increasing private and public saving, thus avoiding a current-account deficit, or by resorting to external saving if the increase in domestic saving is not sufficient to finance the investment and, as a result, national demand is greater than GDP and there is a current-account deficit. The opposite occurs in cyclical downturns. Private investment contracts, probably because productive capacity is perceived to be more than enough to meet the observed or forecast demand. It is then no longer necessary to sustain such a high proportion of private and public saving in relation to output as in the expansion phase, but instead it is possible to reduce it and to adjust current demand to productive capacity. These cyclical adjustments do not presume that private investment or any other demand component is the cause of the fluctuations in the level of economic activity. The intention here is not to investigate the causes of business cycles, but only to describe the contribution of fiscal policy to their stabilisation.

To study the stabilising effects of fiscal policy in the main industrialised countries, the accounting framework described above is used. All the statistical information is from the AMECO data base of the Directorate General of Economic and Financial Affairs of the European Commission, including the estimates for 1996 and the forecasts for 1997 made by its Technical Services in November 1996. The series available in the data base used are not entirely homogeneous, and small differences persist between the aggregates and balances and the additions and subtractions of their components. To maintain strict additivity, a criterion of always using the aggregate or the balance resulting from adding and subtracting the components was applied, although the differences in the estimates are in-

FIGURE I.13



variably negligible. The same approach will be followed in the analysis of the stabilising effects of fiscal policy in each of the countries studied.

First, we shall examine the cyclical sensitivity of total general government revenue and expenditure, as well as that of their balance [net lending (+) or net borrowing (–)], by means of simple regressions of the annual changes in their weight as percentages of GDP at current prices on the annual rate of change of GDP at constant prices. These regressions allow an overall assessment to be made of the stabilising or destabilising influence of fiscal policy.

Second, we shall study the stabilising effects of the income redistribution operations performed by general government, through its revenue and current transfers, on the gross disposable income of the rest of the sectors making up the national economy. These effects are associated with the cyclical sensitivity of the respective income redistribution operations, and are estimated by regressing the annual changes in each of the variables as percentages of GDP at current prices (or, in other words, the changes in the current value of the variable, deflated with the GDP defla-

tor, as percentages of GDP at constant prices) on the annual rates of change of GDP at constant prices.

Third, we shall analyse the stabilising effects of decisions (public and private) to spend on goods and services in relation to the gross disposable incomes of both sectors, i.e. the consumption/saving and investment/borrowing decisions of general government and other resident sectors and their impact on the national economy as a whole. As in the case of income redistribution operations, the stabilising effects of the different sectors' consumption and investment expenditure at current prices on aggregate spending are associated with the cyclical sensitivity of the respective variables, and are estimated by regressing the annual changes in these variables at current prices as percentages of GDP at current prices (or else the current value of the variable, deflated with the GDP deflator, as percentages of GDP at constant prices) on the annual rates of change of GDP at constant prices. As is later shown, the inertia in the movement of prices or deflators and the rigidity of relative prices ensure that the stabilisation of spending at current prices is almost entirely passed through to demand and output at constant prices. The difference between the cyclical sensitivity of a component of demand at current prices and at constant prices depends solely on changes in the deflator of that component relative to the GDP deflator. To the extent that prices (deflators) fluctuate less than amounts (volume indices) and that there are no sharp changes in relative deflators, one would not generally expect significant differences between the estimate of the stabilising effects of a demand component measured one way or the other.

In describing the cyclical sensitivity of the variables analysed, the same type of graphic depiction in panel form, consisting of charts whose variables are related in accounting terms, will be given for all cases. Each panel will be presented according to the chapter and the order in which it appears in the text, and the charts of the variables will be so named and will be presented in two columns. The left-hand column will show the current values of the variables as percentages of GDP at current prices, with the sole exception of the rate of change of GDP at constant prices. The right-hand column will show, through lines, the deviations – from the average of the period analysed – of the annual changes as percentages of GDP of these same variables, measured in the right scale, and, through vertical bars, the deviations – from the average of the period analysed – of the annual rate of change of GDP at constant prices, measured in the left scale. The left-hand column will illustrate the structure and the trend of the original series of the variables studied. The right-hand column will give an idea of the relationship between the deviations which have just been defined, a relationship referred to as the cyclical sensitivity of the variables. Hereafter, to abbreviate, we shall speak of

fluctuations in these variables and of fluctuations in growth to denote these deviations – with respect to the average in the period – in the annual variations of each variable as percentages of GDP and of the annual rate of change in GDP at constant prices, respectively.

As noted, the stabilising effect of any variable is estimated on the basis of simple ordinary least squares regression. In this regression what we are interested in studying is the sign and the magnitude of the estimated coefficient and its stability over the sample period, as well as the value resulting from the correlation coefficient. The estimates were made with the Eviews programme of MICRO TSP for windows, and the estimation routine involves the following steps: first, the most important characteristics of the series (average, median, extremes, standard deviation, normality of the histogram, etc.) are examined, and the augmented Dickey-Fuller test is applied to check their stationarity. The ordinary least squares regression is then run to find the value of the cyclical sensitivity coefficient of the variable analysed, as previously defined. The t-ratio is used to evaluate its significance, and the adjusted coefficient of determination is used to evaluate the growth relationship. Once the significance of the estimated coefficient of cyclical sensitivity has been studied, its stability over the sample period is analysed through a recursive estimation based on ordinary least squares and by running the pertinent tests (RSS, or residual sum of squares, prediction of the next period, etc.).

To evaluate the significance of the estimated coefficient, the characteristics of the regression's residuals are analysed, and, more specifically, various tests (Q, Breusch-Godfrey, ARCH) are run to determine the possible existence of autocorrelation between them. In the most frequent problem, involving the existence of significant first-order autocorrelation (absolute value of the coefficient greater than one divided by the square root of the number of observations included in the estimate), a correction is made by introducing an AR(1) term in the initial equation, whereby the equation becomes non-linear and it is estimated by applying a Marquardt algorithm for non-linear least squares. This correction is purely statistical, but it allows us to find out whether the previously estimated value of the coefficient, its t-ratio and correlation change when the residual autocorrelation is smoothed, because the interpretation of these values does not change. When there are more complicated autocorrelations between the residuals of the original regression, an analogous procedure is followed, since there are no limits on introducing AR and MA terms in the specification of the equation. The objective of this ARMA modeling is to find a parsimonious representation of the process that determines the residuals, so that the initial autocorrelation is sufficiently smoothed, providing a more reliable valuation of the estimated coefficient of cyclical sensitivity. However, this correction is not always possible, because the roots of the AR

and MA polynomials occasionally have a module of less than one, indicating that the autoregressive process is explosive or that the moving average process is not invertible.

The structure of the tables which summarise the results of the estimations will also be the same for all the countries studied, and they are numbered according to the chapter and the order in which they appear. They provide information on the average change in each variable over the period analysed, the scale of its fluctuations and its cyclical sensitivity. The first two columns in the tables show the average and the standard deviation of each of the dependent variables in the estimated regressions (annual changes as percentages of GDP of the different items of government revenue and expenditure, components of demand, etc.). Also shown, as memorandum items, are the average and standard deviation of the independent variable of these regressions (annual rate of change of GDP at constant prices in all cases). The third column gives the estimated coefficients of cyclical sensitivity, the fourth the t-ratios of these coefficients, the fifth the Durbin-Watson statistic, and the sixth the adjusted coefficient of determination.

To summarise, the changes in the variables used for the analysis and their graphic depiction are the following: *a)* the original series are drawn from the AMECO data base, measured in national currencies at current prices (all variables) and constant prices (GDP and demand components); *b)* percentages of GDP at current prices of all the variables measured at current prices (which figure on the left-hand side of the charts in the next chapters) and the percentages of GDP at constant prices of the demand components measured at constant prices; *c)* the annual rate of change of GDP at constant prices, which will be the independent variable in all the regressions; *d)* the annual changes in the variables as percentages of GDP, which will be the dependent variables in the regressions, and *e)* for the representation on the right-hand side of the charts in Chapters III to IX, the deviations of the variables in the regressions from the average in the period: the rate of change of GDP at constant prices (the independent variable, represented by vertical bars, measured in the left scale of the charts) and the annual changes in the dependent variables (represented by lines, measured in the right scale of the charts). In the charts where the components of demand appear, the gray line refers to the variables at current prices and the black line to the variables at constant prices.

II

HISTORICAL FRAMEWORK: ECONOMIC GROWTH AND STABILISATION POLICIES (1960-1995)

The characterisation of the stabilising effects of fiscal policy in the main industrialised countries and Spain, addressed in Chapters III to IX, is best understood against the general backdrop of the growth and stabilisation problems encountered by their economies. Although the specific problems of each country are dealt with in the introduction to these chapters, the more general problems evidenced to a greater or lesser extent in all the countries in question are described in the present chapter.

II.1. Economic growth and stabilisation policies in the sixties

In November 1961, at the first meeting of the Council of Ministers of the OECD, the member countries set the objective of increasing their total national production by 50 % in the period 1960-1970. In establishing this target, the Council emphasised that orderly, sustained growth would require price stability, as well as adequate equilibrium in international payments. By May 1970 it was clear that the growth target set in 1961 had been surpassed, having reached 55 %, representing a compound average growth rate of around 4.5 % annually. A number of structural changes made this wave of economic prosperity possible, while also helping to ensure more stable growth. Among others, these changes included the rapid shift in labour away from agriculture to industry and to services in particular – with unprecedented gains in productivity, greater in agriculture than in industry, and greater in industry than in services– and the moderate increase in the weight of public spending in output, which proved compatible with continued high saving and investment rates.

Projections for the seventies pointed towards a quickening in economic growth to 5.3 % annually, signifying 65 % to 70 % growth in the

GDP of the OECD as a whole in the decade. But, even though the growth targets for the sixties had been met and the outlook was promising, the same could not be said of the other goals established in 1961: *a)* economic fluctuations had eased but were still a cause for concern; *b)* price stability was far from being achieved; *c)* within each country, the fruit of economic growth had been unequally distributed, with poverty persisting in certain sectors and geographical areas; *d)* there was a growing gap between industrialised and backward countries, and aid to developing countries had hardly risen, and *e)* the significant imbalance in trade and international payments had unleashed frequent monetary crises.

The fluctuations in economic growth had similar origins in all countries. While demand and output grew rapidly, the authorities allowed the expansion to continue unchecked until strong pressures on the labour market, unacceptably high price rises and, in many cases, balance-of-payments deficits emerged. Strict measures were then taken to curb the growth in demand, and these restrictions prevailed until production stabilised and unemployment rose. The authorities then swiftly reversed their restrictive measures and allowed the expansion to begin again. Thus the view was that, during both the upturns and the downswings in the business cycle, the measures required by the situation were nearly always taken too late and were set in motion too slowly. This succession of stop-go measures naturally had undesirable repercussions for private investment planning and for smooth wage growth; it also distracted the attention of economic policy-makers, who were busily intervening in the economy rather than focusing on medium-term objectives. Given the political and institutional obstacles that made any rapid or agile line of action in this field difficult, the delay in the authorities' response invariably led to problems.

In addition to the disparity in growth associated with cyclical fluctuations, the two other problems of the sixties were inflation and trade imbalances. Inflationary trends became increasingly pronounced, and problems of price escalation arose whenever the expansion in demand was allowed to run beyond productive capacity or to hit bottlenecks in the labour market. It was believed that a more agile and timelier manipulation of aggregate demand through temporary economic policy measures would help to allay price tensions. But monetary and fiscal policies alone were not enough to guarantee orderly growth, and this led governments to resort to other measures as well, such as incomes and structural policies (employment, regional and sectoral measures, and policies aimed at improving the play of competition). But incomes policies also failed to produce the expected effects. On the one hand, as long as the level of demand remained very high, incomes policy invariably proved too weak to resist the pressure of market forces. On the other hand, conflicts arose between the notion of efficiency and what social partners considered fair -

to ensure efficiency required some wages to grow beyond the average that governments recommended or considered acceptable, while the other wage-earners did not want to accept lower growth in their own earnings. When strict guidelines were set, the wage drift produced by various items and channels ultimately caused wages to overshoot the limits set, because wage-earners invariably rejected the effects of an incomes policy that weighed exclusively on earned income. Also, as a general rule, the sectors where productivity gains were more pronounced found it intolerable that their real earnings were growing more slowly than their productivity. In the area of structural policies, provisions aimed at training or recycling workers in sectors characterised by rising unemployment were frequently enacted, as were policies to protect or restructure obsolete industries and to enhance the play of competitive mechanisms in order to eliminate structural rigidities and imbalances.

As to the distribution of the fruit of economic growth within each country, society became increasingly sensitive to the costs exacted by this growth in terms of pollution, environmental degradation and over-populated cities, while at the same time expectations were high in areas such as education, health and social security. The basic dilemma facing all advanced economies was how to reconcile relatively stable economic growth with the provision of a social security network for people less favoured by the country's overall prosperity. This fragile balance was inevitably upset by frequent deviations in one direction or another. After the years of buoyant economic growth in the fifties and sixties, there was a heightened awareness that some groups in society had remained on the sidelines of prosperity and that the resources existed for meeting their more pressing needs, which caused redistributive public spending programmes to be broadened. The intention was to guarantee a minimum level of well-being for all citizens, seen as an individual right for which the State was responsible, and countries aspired to create welfare states without undermining economic efficiency, trusting that the trend growth in productivity would continue unchanged. But the experience of the more advanced countries suggested that such programmes, when made extensive to the entire population, tended to erode the incentives to work and to save. This was true both in the case of the poorer members of society, who became permanently dependent on welfare benefits, falling into what are known as the unemployment and poverty traps, and in the case of the affluent, who had to pay higher tax rates and looked for ways to ease their tax burden. The outcome was ultimately a decline in productivity and growth [Boskin (1987)].

Meanwhile, the development gap between rich and poor countries was also cause for concern and a potential source of economic and political instability in a world divided by the cold war, and where many countries had only recently gained political independence and were debating

between a market economy and Soviet-style socialism, while fuelling nationalisms that sharpened their identity. Competition between the industrialised countries for the control of natural resources – especially oil and other raw materials – and the increasingly low prices of these resources on international markets in relation to manufacturing prices intensified the economic dependence of new nations on the richer countries, dashing their expectations of development. The oil crises of the seventies were a dramatic symptom of this situation of economic disequilibrium and political conflict.

Lastly, it also became clear that the imbalances in international trade relations and payments were a threat to harmonious economic development, because the measures taken by an individual country or group of countries to rectify their trade deficits created the risk of causing a contraction in world trade and production unless the effects were offset by the application of expansionary measures in economies with surplus balances. Throughout the sixties payments imbalances were a persistent problem, setting off several short-lived monetary crises of a speculative nature. There were two main sources of disequilibria: fluctuations in demand in the short run, for which the more systematic application of stabilisation policies was recommended, and the divergence between domestic and export prices, for which the remedy suggested was greater attention to the role of exchange rates as a corrective for these imbalances. The restrictions imposed on national policies by the international monetary system of fixed exchange rates were viewed by some countries as an obstacle to economic growth and by others as a source of imported inflation. The incompatibility between the policies applied by the main industrialised countries and the potential for output growth in conditions of price stability led to the crisis of the Bretton Woods system, paving the way for even greater disequilibria and the slowdown in economic growth in the seventies.

The intrinsic weakness of the Bretton Woods system, in which the dollar became the de facto reserve currency, was underscored by R. Triffin in 1959 (see *Gold and the Dollar Crisis. The Future of Convertibility,* Yale University Press, 1960, Chapters VI and VII). If demand for reserves grew faster than the gold available to meet this demand, then only a growing supply of dollars – the only convertible currency – could cover the difference. But if the United States provided the necessary liquidity to the system, incurring a persistent balance-of-payments deficit, a problem of lack of long-run confidence in the dollar's convertibility would arise, undermining the system's stability and possibly causing its collapse. Such was the course of events in the sixties, whose milestones are outlined below (see H. James, *International Monetary Co-operation since Bretton Woods).*

In mid-1960 the total external liabilities of the United States exceeded, for the first time ever, the value of its gold reserves at the official price of $35 per ounce, upward pressures erupted in the price of gold on the London free market – reaching $40 in October – and an informal gold pool was created (the United States, Germany, France, the United Kingdom, Italy, Holland, Belgium and Switzerland) to keep the price of gold stable at around its official price. In 1964, as a consequence of rapid growth in the world economy and increasing trade and balance-of-payments disequilibria, the demand for reserves rose much more swiftly than the supply of gold. The United States maintained its balance-of-payments deficit, supplying the dollars necessary to ensure the system's liquidity, and its liabilities to foreign monetary authorities surpassed the coverage provided by its gold reserves, valued at the official price of $35 per ounce. In the following years the problem of long-run confidence in the dollar's convertibility was compounded by short-term problems of a similar nature, derived at least in part from the fact that several European countries, such as France, insisted on converting their dollar reserves into gold as a way of pressuring the United States to eliminate its balance-of-payments deficit. France withdrew from the gold pool in mid-1967 after converting nearly all its reserves into gold. This growing lack of confidence was first evidenced in the system's weakest point, namely the pound, whose devaluation in November 1967 diverted these foreign exchange pressures straight in the direction of the dollar. Given the magnitude of the speculative pressures unleashed in the early months of 1968, the gold pool agreed in March to stop intervening in the free market, reserving the gold held by the monetary authorities for transactions among themselves. At the same time, they stated their intention of keeping balance-of-payments problems in check through co-ordinated fiscal and monetary measures – restrictive in deficit-running countries and expansionary in those with surpluses – to preserve the prevailing exchange-rate parities.

Despite the relative calm on markets in 1969 and 1970, the system remained extremely fragile. On the one hand, the attempts to co-ordinate economic policies ran up against the countries' different priorities in the area of economic growth targets and inflation control. On the other hand, exchange-rate stability was unsustainable at the existing parities which, given the persistence in balance-of-payments disequilibria, indicated a substantial undervaluation of several currencies – above all, the German D-Mark and the yen – against the dollar. It was widely believed that the capital flows which tended to exert pressure on official exchange rates were of a speculative nature, and that there was no fundamental disequilibrium in current-account balances requiring an adjustment in parities. However, the different cyclical positions of the main industrialised countries in the period 1969-1971 only sharpened the divergence in economic policies, eventually causing the collapse of the fixed exchange-rate system.

The United States, France and the United Kingdom appeared to be drifting towards a recession, while the economies of Germany and Japan were expanding rapidly. In August 1969 the French franc was devalued by nearly 11 % against the dollar as part of a policy intended to revive economic growth in France. In October of that year, after absorbing a vast volume of dollars in its reserves, Germany revalued the D-Mark by 9.3 % against the dollar. Amid a recession in the US economy in 1970, Nixon decided to apply a clearly expansionary fiscal policy, backed by the Federal Reserve, and Britain's conservative government followed suit.

At the beginning of 1971 an acute crisis set in – reflected in the dollar's flight towards currencies then considered to be stronger – as a result of expectations that the United States would record its first trade deficit that year since 1893. In March, with the main European countries failing to reach a consensus, Germany allowed the D-Mark to float. The guilder followed. The Swiss franc and Austria's schilling were revalued. In August 1971 Nixon ordered the abandonment of the dollar's convertibility into gold and established a surcharge on imports in a bid – unsuccessful – to rein in the US balance-of-payments deficit. In December of the same year the Smithsonian Agreement on the realignment of parities was reached, while at the same time the margin of currency fluctuations was widened from the 1.25 % previously authorised by the International Monetary Fund (IMF) to 2.25 %. The dollar was devalued from $35 to $38 per ounce of gold. Germany, Belgium and Holland revalued. Italy and the Scandinavian countries devalued their currencies against gold but not against the dollar. But these realignments were not enough, especially the devaluation of the dollar, which in early 1972 traded at $44 per ounce on the free gold market. As a result, the expected return of funds to the United States failed to materialise. And these funds continued to be the fuel for speculative movements in European markets: in June 1972 freely floated sterling began to depreciate, and by August the price of gold had risen to $70 an ounce. In February 1973 Nixon announced his intention of devaluing the dollar by a further 10 %, triggering a fresh flight of dollars and causing the price of gold to rise to $90 per ounce by the end of the month. This put other currencies under extremely heavy pressure, and foreign exchange markets were shut down for two weeks in early March, when a floating exchange-rate system was introduced, ending nearly 30 years of fixed exchange rates.

The conditions for the crisis of the Bretton Woods monetary system, which had satisfactorily instrumented payments during the period of economic growth immediately after World War II, were laid by the excessive expansion in international liquidity in the sixties, stemming from the activist economic policies of the United States and other industrialised countries, which aspired to keep their economies on a permanent path of full employment by stimulating growth in demand whenever the pace

of economic activity flagged. Due to this activism, inhibited only by the restrictions imposed by the international monetary system on all countries except the United States, inflationary strains began to simmer and would ultimately emerge in full force several years later once the element of nominal anchorage provided by fixed exchange rates had vanished. Prices underwent an unprecedented escalation in the seventies, due to the economic policies applied in the aftermath of the inflationary and recessive shocks produced by the drastic jump in oil prices in the final quarter of 1973. This, too, shattered another of the pillars on which the growth in industrialised economies had rested in previous decades: the cheap and abundant supply of energy.

II.2. The crises of the seventies

The long wave of prosperity in the economies of OECD countries, which had lasted more than a quarter of a century, floundered after the first oil shock in 1973. The new energy situation – with a major impact on relative prices, the real incomes of nations and payments balances – was unquestionably one of the factors that triggered the greater instability and sharp deterioration in economic activity, in terms of conventional macroeconomic indicators, that beset all industrialised countries from then onwards. Fundamental imbalances were reflected in inflation, unemployment, budget deficits, private-sector saving/investment ratios and current-account deficits. But these imbalances, which intensified in the seventies, had much earlier origins, and the conditions had been laid by the activist economic policies of the main industrialised countries.

In the fifties and the sixties, the expansion in the public sector had been relatively limited and took place in a setting of nominal stability and high real growth in economies, nourishing a strong optimism regarding the potential of economic policy, and fiscal policy in particular, to promote and stabilise high growth rates without causing significant imbalances. The most common opinion held by economists at the time was that the size of the public sector in most economies was smaller than desirable, and that it should be enlarged to further the goals of efficiency, fairness and stability in the allocation of resources. The stance and the objectives – and also the risks – of the activist fiscal policy of the sixties were clearly set out by Walter W. Heller, who chaired the Council of Economic Advi*sors under Kennedy and Johnson, in his book New Dimensions of Eco - nomic Policy* (New York, Norton, 1967). In his view, by the mid-sixties a sort of consensus had been reached among economists on at least one point: "... we agree that the economy cannot regulate itself. We are now certain that the government must act to provide essential stability to em-

ployment and growth levels which the market mechanism, on its own, cannot provide." This certainty regarding the capacity of government intervention to improve on the play of the market in the area of economic stability was derived from the belief in the applicability of Keynesian theories: "In economic policy, the day of the Neanderthal man – in other words, pre-Keynesian man – belongs to the past." ... "Today we finally accept what was accepted by law 20 years ago (the Employment Act of 1946), namely, that the federal government has a much greater responsibility in the nation's stability and economic growth. We have finally employed monetary and fiscal policy aggressively to achieve this end." But, as the decade of the seventies unfolded, the opinion of economists and politicians as to the stabilising possibilities of fiscal measures turned pessimistic, as the expansion in the public sector gradually swelled to dimensions that many considered excessive and as macroeconomic results, indicating less growth and greater disequilibria, gave rise to doubts regarding the efficiency of demand manipulation policies to keep the economy on a path of high and stable growth.

The drastic rise in oil prices, which triggered a recession in industrialised economies, had also been brewing during the previous decades of accelerated growth in energy consumption. From the beginning of the fifties to the end of the sixties, the world oil market surged extraordinarily. The growth in crude production was enormous: from 8.7 million barrels per day in 1948 to 42 million in 1972. The known reserves in non-Communist countries went from 62 billion (thousand million) barrels in 1948 to 534 billion in 1972. The growth in reserves was greater than the growth in consumption, with consumption coverage increasing from 19 years in 1950 to 35 years in 1972 (see Daniel Yergin, *The Prize, the Epic Quest for Oil, Money and Power,* Simon & Schuster, London, 1991, p. 500). World energy consumption more than tripled in these years, but oil consumption rose by more than five and a half times: it tripled in the United States (from 5.8 million barrels per day to 16.4 million barrels per day), increased by 15 times over in Western Europe (from 970,000 barrels to 14.1 million barrels per day) and by 137 times over in Japan (from 32,000 barrels to 4.4 million barrels per day). At the same time, the price of crude oil steadily slid, becoming very cheap, partly due to the pressure exerted by the producer countries on the concession companies of oil fields to enlarge their market share, producing more crude and generating higher revenues (pp. 541-542).

Oil consumption showed no signs of slowing in the early seventies and, despite the enlarged volume of known reserves, effective crude production capacity did not rise at the same rate as consumption. The relationship between supply and demand indicated that the era of abundant cheap oil on markets was drawing to an end. By 1973 the surplus produc-

tion capacity actually available was approximately half a million barrels per day: barely 1 % of the consumption of non-Communist countries. As the economic expansion of the years 1971 and 1972, simultaneous in all industrialised countries, and the greater demand for oil led to pressures on the limited production capacity, market prices began to rise, remaining for the first time systematically higher than official prices. This was a decisive change in price trends, putting an end to 20 years of surplus supply, during which the profits from exploiting oil fields were divided up equally among oil companies and the producing countries. The latest agreements – 1970 (Tripoli) and 1971 (Tehran) – guaranteed the producing countries a minimum of 55 % of the "profits", defined as the official price less all costs borne by the petroleum companies per barrel of oil placed on the market. These agreements had been advantageous to the producing countries as long as market prices tended to be lower than the official price, but this was no longer the case between 1971 and 1973, when the market price of crude doubled, moving clearly beyond the official price. Since the difference between the official and the market price enlarged the profits of oil companies but not the earnings of the producing countries, the latter began to call for a revision of the agreements in force.

The decision of the petroleum exporting countries to enlarge their share of the income generated, combined with the agreement to use crude as a weapon to force Western countries to support Arab interests in the conflict with Israel, unleashed the first oil crisis, in the autumn of 1973. On October 6, the Yom Kippur war broke out between the Arab countries (Egypt and Syria) and Israel. On October 14, the Organisation of Petroleum Exporting Countries (OPEC) announced that negotiations with oil companies had collapsed, and on October 16 the representatives of the Persian Gulf countries (five Arab countries plus Iran) announced their decision to raise the official price per barrel by 70 % to $5.12, aligning it with the price prevailing on a market where buyers were swept by panic at the possibility of being left with no supplies. Moreover, the representatives of the Arab countries agreed on an embargo that reduced production by 5 % with respect to the level of September and would continue to reduce production by an additional 5 % each month until the United States met their demands. The embargo had very powerful effects on a nervous market racked by uncertainty, and led to over-reactions by companies and consumers, who sought to accumulate enough stock to guarantee continued consumption, in turn leading to fresh rises in the market price. Against this backdrop, the oil ministers of OPEC countries met again in late December and decided to set a new official price per barrel of "Arabian Light" crude at $11.65. The increases in the official price had gone from $1.80 in 1970 to $2.18 in 1971, $2.90 in mid-1973, $5.12 in October and $11.65 in December 1973 (p. 625).

Together with the problems derived from higher oil prices, the main industrialised countries' difficulties in co-ordinating their economic policies persisted, as did the instability on foreign exchange markets. Until the end of the decade of the sixties, when the international monetary system in force since 1944 was weathering severe tensions and disagreement among the main industrialised countries, which would eventually lead to the system's dismantling, there had been no ambitious initiative to advance towards economic and monetary union in Europe. The differences among European countries were particularly evident in the case of Germany, whose basic worries were the flow of capital to its economy, with the resulting upward pressures on the D-Mark and the ensuing difficulties in controlling the money supply, and the acceleration in domestic prices induced by imported inflation. It thus aspired to a joint flotation of European currencies – pegged to the D-Mark to prevent a loss of competitiveness – that would lead to an appreciation of all these currencies against the dollar. By contrast, France, more sensitive to the slowdown in the growth of its economy, was in favour of keeping exchange rates fixed and revaluing the D-Mark and the yen against the dollar. These differences had led to a devaluation of the franc in August 1969 and the revaluation of the D-Mark in October of the same year.

The summit meeting of the EEC heads of state and government held in the Hague in December 1969 encouraged a further advance in the direction of economic and monetary union in Europe, and the Werner Committee was given the task of drawing up a report containing a specific plan for reaching this objective. The Werner Report appeared in 1970, recommending that said advance be geared towards closer co-operation in the economic policies of Community countries and towards limitations on the fluctuation margins of exchange rates. However, no real progress was made in this direction until the Smithsonian Agreement of December 1971, which sought to restore order in the international monetary system. It was then that the Basle agreements of April 1972 set in motion the measures proposed in the Werner Report, with the creation of what would shortly become known as the European "currency snake". But in time none of these agreements proved to be sustainable, and the definitive abandonment of the multilateral system of fixed exchange rates in the spring of 1973 also doomed the currency snake to failure.

The Basle agreements required the participating countries to keep their currencies within a parity grid, so that the central banks had to intervene to ensure that exchange rates fluctuated within a margin of 2.25 % around the central parity. The system began to function among the six original member countries of the Common Market, with the United Kingdom, Ireland, Denmark and Norway – candidates for entry into the Common Market – joining immediately afterwards. The rules were strict, and interventions would weigh most on the countries with weak currencies,

whatever the cause might be, although they could receive assistance in the form of short-term credit between central banks through the European Monetary Co-operation Fund (EMCF), created in October 1972. These were very weak underpinnings, because Germany, aspiring to unconditional management of its money supply in order to control domestic inflation, shied away from any commitment on foreign exchange markets that would force the Bundesbank to intervene in defence of weak currencies or jeopardise this control. Consequently, it continued to argue that a general floating system was the best one for preventing imported inflation, although it was not opposed to a unilateral pegging of other currencies to the mark.

The viability of the Basle exchange-rate agreements was very shortly put to the test. A speculative wave against the dollar inevitably affected the pound, which was forced to withdraw from the system eight weeks after joining, with the Danish krone following suit, although it returned to the system in October. The exchange-rate instability that characterised the final months of the Bretton Woods monetary system reached extraordinary proportions. In February 1973 the lira withdrew, in March and June the D-Mark was revalued, followed in September by the guilder and in November by the Norwegian krone. When the international monetary system of fixed exchange rates was dissolved in the spring of 1973, the margin of autonomy in German monetary policy increased enormously, inflation continued to be a significant problem, becoming much more acute with the surge in oil prices at the end of that year, and the Bundesbank did not want to find itself burdened with exchange-rate commitments. The absence of economic policy co-ordination strong enough to allow the major European countries to take a common stand in the economic and financial adjustments required by the new situation made it impossible to uphold the Basle agreements. When the French franc withdrew from these accords in January 1974, the currency snake languished, gradually transforming itself into an area of the mark, to which the currencies of a few smaller countries remained pegged, even though France returned to the system in July 1975, before departing definitively in March 1976.

The abrupt slide in economic growth and the accommodating response of economic policy produced a substantial rise in public spending, which, as a percentage of GDP, in many countries increased in only three years by more than it had grown in the previous two decades. As a result of this policy, the situation of general government finances deteriorated severely. Moreover, there was a general rise in inflation rates and, in many cases, depreciations in the exchange rate and acute balance-of-payments problems. The inflationary effect of the rise in oil prices was exacerbated in nearly all countries by greater wage pressures, due to the resistance of workers to accept reductions in real wages. The wage increases at the time were also accompanied by higher social security con-

tributions to meet the higher welfare expenses required by the adverse economic situation, with expenditure not only on unemployment protection but also on meeting payments for early retirement pensions and job disability. Amid very substantial cost increases, corporate margins tightened, discouraging investment in fixed capital and accentuating the recession and job destruction. The changes in relative prices, the technological obsolescence of a sizeable portion of plant equipment and the shifts in demand between productive sectors required employment adjustments that met with strong resistance by workers. Fiscal policy responded with increases in public spending on subsidies and capital transfers to maintain employment in the sectors affected. At the same time, governments were unsure as to the most appropriate economic policy strategy for controlling inflation.

The strategy of controlling inflation could have significant costs in terms of loss of production and employment, depending on the inflationary expectations of wages and the general credibility of economic policy. If expectations were rationally formed and the stated intentions of the authorities to eliminate inflation were accepted, workers would expect a gradual reduction in the wage growth of the immediate past, and the losses in production and jobs would then be minimal. But if, because of past experience, the inflationary expectations of workers were deeply rooted and they were certain of a future easing in monetary discipline, then the policy decision of lowering inflation at any price so as not to lose competitiveness and not to vanish from world trade might have a high social cost.

The definitive abandonment of the fixed exchange-rate system in 1973 left all countries – except the United States – without a nominal anchor for the stability of their economies, requiring stricter control of monetary aggregates, which came to be considered a key instrument for checking inflation. In countries which gave priority to inflation control, such as Germany and Japan, the setting of quantitative intermediate targets for monetary policy and the persistence of high budget deficits led to increases in interest rates and tended to cause currency appreciations, thus discouraging investment demand and net exports and eroding the growth potential of their economies. Furthermore, the resistance to production adjustments and high interest rates rekindled the deficit and the accumulation of general government debt, thereby giving rise to a vicious circle of low growth in activity and employment and rising unemployment rates.

Other countries gave priority to maintaining employment and adopted a policy of gradual adjustments, eschewing the risk of an all-out collapse in productive activity that a radical stabilisation plan might produce. But this gradualism meant prolonging the adjustments over time and, by extension, the persistence of the budget deficit associated with the crisis. In

turn the problem arose of financing these adjustments in the medium term, at high interest rates, that made it essential to weigh carefully the possible adverse consequences of such financing on the economy's growth and its influence on the still deeply ingrained inflationary expectations. In this respect, if the real interest rate of public debt exceeds the real growth rate of the economy, the continuance of a fixed amount of debt in private hands will make it necessary to raise funds from other sources to meet interest payments. For a given time path of public revenue and expenditure, generating a sustained deficit, these funds can only come from the placement of new issues of debt or the enlargement of the money supply. As the first source seems limited by the availability of national saving and by the conditions of access to external saving, private agents may expect that the authorities will sooner or later resort to greater increases in the money supply, thus fuelling expectations of higher inflation in the future, in turn probably giving rise inflationary behaviour in the present. Therefore, the strategy of gradual adjustments was not without its risks, since it threatened to undermine the credibility of the economic policy proposed if it were interpreted as a lack of political determination to confront the problems at hand. Even so, most governments were inclined to adopt gradualist policies by seeking to check inflation through incomes policy agreements with labour unions and business organisations and by paying closer attention to the control of monetary aggregates, while fiscal policy was largely geared towards sustaining growth in private-sector income and aggregate demand.

The slowness of the expected upturn in economic activity after the recession of 1975 and the balance-of-payments disequilibria of the main industrialised countries, which had deepened depending on the priorities of each country in the area of inflation control and the sustainment of activity, suggested the need for a common strategy within the framework of the OECD to stimulate a swifter pace of recovery. Under this strategy, the countries with a sounder external position and fewer inflation problems were to expand their domestic demand, acting as "locomotives" of the other economies with balance-of-payments difficulties and persistent losses in competitiveness. The candidates for locomotives (Germany, Japan and, initially, the United States) resisted adopting more expansionary policies that went against their priorities, but, when the United States went from locomotive to freight car, it exerted strong pressure in favour of this strategy, which led to the adoption in 1978, after the Bonn summit, of fiscal expansion measures inspired by the OECD's concerted action plan.

Meanwhile, midway through the decade of the seventies, inflationary tensions and exchange-rate adjustments continued, nourished by the slowness in the real corrections in industrialised economies and the different priorities pursued by the countries in their macroeconomic policies. In the area of the European Common Market, the strong swings in the

real exchange rates of the main countries threatened to distort the conditions of competition and even the rules that governed the trade relations among the member states. The origin of exchange-rate movements lay in the differences in their balance-of-payments positions, inflation trends and economic growth rates. These differences among the main industrialised countries gave fresh impetus to the idea of establishing a monetary system among European countries to help stabilise the exchange rates of their currencies. The motives of the countries were not the same, but they did concur on this point. From late 1972 to late 1977, the effective nominal exchange rate of the D-Mark had appreciated by more than 40 % and, even though its appreciation was less than 10 % in real terms, the continued weakness of the dollar – whose rate fell from 2.35 D-Marks in June 1977 to 2.06 D-Marks in March 1978 – made German exporters uneasy, since they believed that a European exchange-rate agreement would halt the D-Mark's appreciation and alleviate their problems of competitiveness. Meanwhile, France, Great Britain and Italy faced the need to apply stabilisation policies to their economies in order to reduce inflation and their budget and external deficits, and they hoped that an exchange-rate agreement with Germany would contribute to the success of these policies. Only the Bundesbank held back, extremely reluctant to see exchange-rate restrictions compromise its independence to implement a monetary policy geared exclusively to controlling inflation in Germany. Despite these reservations, in December 1977 the European Council accepted the idea of exploring the possibility of establishing a new exchange-rate agreement proposed by the President of the Council, William Jenkins. Nonetheless, this idea only gained sufficient political force when Chancellor Schmidt took the initiative in early 1978, moved by concern over the dollar's weakness and the emergence of Transatlantic political and economic disagreements with the Carter administration.

The political initiative of Chancellor Schmidt to relaunch European monetary co-operation at the end of 1977 – rapidly seconded by Giscard d'Estaing – was based on a complex strategy, aimed on the one hand at resisting US pressures on Germany's economic policy and on the other at limiting the harmful effects that an excessive appreciation of the D-Mark would have on German trade abroad. The central elements of this strategy were to be defined in July 1978 at the European Council meeting in Bremen, which gave the green light for technical studies to begin for the creation of a monetary union system in the European Community, and at the Bonn summit, where agreement was reached on the expansionary fiscal policy measures to be carried out by Germany and Japan, as well as the restrictive and energy-saving measures that the United States was planning to introduce, while also giving its backing to the European monetary co-operation initiative.

In late July the Council of Ministers of Economy and Finance (ECOFIN) asked the Monetary Committee and the Committee of Central Bank Governors to carry out the technical studies to specify the terms of this greater monetary co-operation in order to ensure that a draft would be ready for submission to the European Council meeting to be held at year's end in Brussels. The points initially agreed by all the countries were that the new system should clearly spell out the conditions for the realignment of parities, in order to give the system further flexibility if necessary, and that the success of the new mechanism depended on greater co-ordination in the economic policies of the participating countries, without which the realignments might be so frequent that the agreements to support exchange-rate stability would be redundant. Not surprisingly, there were also numerous points of profound disagreement concerning the system's degree of symmetry, in particular the credit facilities and the obligations, limits and procedures of central bank intervention to defend the parities. The more restrictive interpretation of the scope and contents of the political initiatives for creating the new system came, as expected, from the Bundesbank, which did not want to see its autonomy to set German monetary policy affected, either directly or indirectly, by any international exchange-rate stability mechanism.

The criteria of the German central bank had a decisive influence on the final design of the European Monetary System (EMS). The key criterion was that it should be possible to suspend exchange-rate intervention in favour of weak currencies if this intervention endangered the control of liquidity. Although the need for certain credit facilities in the system was acknowledged, the limits would have to be strict. Otherwise such facilities threatened to undermine the discipline which the system was intended to impose, by encouraging governments – ultimately responsible for the exchange rate of their currencies – to defend, via their respective central banks, unrealistic exchange rates for overly long periods until draining the system's facilities – and, most certainly, the patience of the central banks with strong currencies on being forced to intervene in support of a troubled currency. The result was the creation of a European Monetary System with an asymmetrical monetary and exchange-rate co-ordination mechanism: most of the weight of the adjustments needed to maintain the exchange rates of currencies around the central parity (defined by a grid of bilateral exchange rates) fell on the weaker currencies, whereas the obligations of the stronger currencies to provide support, although formally unlimited, were in fact determined by the specific circumstances of each case. At its meeting in Brussels in December 1978, the European Council approved the entry into force of the new system, but its effective start-up was delayed until May 13, 1979, due to several eleventh-hour discrepancies over the adaptation of the Common Agricultural Policy schemes to the characteristics of the new monetary system. An ex-

change-rate link was thus re-established among the participating countries, and it would considerably influence the development of their fiscal policies in the medium term.

After the widening in budget deficits brought about by the recession of 1974-1975 in the majority of the industrialised countries, the accumulated imbalances were not adequately corrected in the years 1976-1978, when there was a certain recovery in economic growth, albeit without reaching the rates characteristic of the pre-recession bonanza years. The conclusion drawn from this experience was that the structural deficit had risen. In other words, the discretionary measures adopted since the onset of the recession, especially on the public spending side, had reached a permanently higher level, which remained high in terms of GDP during the cyclical upturn. At the same time, there was concern over the possibility that these fiscal measures had not only signified a permanent increase in the level of public and national spending but also may have hurt the economy's production potential by reducing the labour supply and, combined with the restrictive stance of monetary policy that had given rise to an increase in the real interest rate, by hurting gross fixed capital formation, at a time when the technological obsolescence of older plant equipment and the shift in demand from one sector to another called for particularly strong investment efforts. An example of this type of fiscal measure to combat unemployment and to sustain demand in a recessive period was the early retirement of workers in declining sectors, financed with public debt. Unlike the schemes to sustain income through unemployment benefits and active policies of job recycling, this measure had the permanent effect of raising demand and reducing supply, by increasing inflation, the external imbalance, the budget deficit and public debt. Similar effects were produced by the budget financing measures, through subsidies and capital transfers, of redundant jobs in declining sectors.

This experience had important implications for the design of stabilisation policies, as it underscored the need for supply policies to make the allocation of resources more efficient, via structural reforms capable of improving the incentives to work and to save and of giving greater flexibility to the workings of the economy. The authorities in charge of economic policy became more sceptical, and the instruments of analysis themselves came under harsh criticism. This was especially true on the theoretical side, with the studies on rational expectations questioning the Keynesian focus on economic policy as a problem of optimum control of a mechanical system, and instead addressing policy as a dynamic game in which rational agents participate, reacting strategically and not automatically to the decisions of policy-makers.

Both aspects – the scepticism of the authorities about the effectiveness of traditional stabilisation policies and the objections to the use of

Keynesian multipliers – were fully reflected in the comments of Robert Lucas on a report of the OECD (see Paul McCracken *et al. Towards Full Employment and Price Stability. A Report to the OECD by a Group of In - dependent Experts,* OECD, June 1977). Here he reproached the authors for their vagueness and imprecision, and at the same time yearned for the authority and forcefulness with which Walter W. Heller had defended Keynesian ideas in 1966, incorporated in the multipliers of the type developed by Hansen, in the formulas for calculating the GNP of high employment, etc. In his critique of this report (published in Karl Brunner and Allan H. Meltzer (eds.). *Policies for Employment, Prices and Exchange Rates,* vol. 11 of the Carnegie-Rochester Series on Public Policy, Amsterdam, North Holland Publishing Company, 1979, pp. 161-168), Lucas stated: "It is now easy to rule out these formulas as 'plain and simple', but they can be described with more propriety as significant and functional. Their advantage over a concept such as 'the path of recovery considered correct' is that they provide a quantitative guide and have the property that, if two different economists are asked to develop their details, both will arrive at approximately the same answer." The report was, according to Lucas, characterised by "undisciplined eclecticism" and by the ambiguity of many of the concepts used, and he added: "It is a sad but true reflection of what has occurred in the past decade that Part I of the OECD's report is titled: What went wrong? ... Briefly, what went wrong is that Keynesian macroeconomic theory failed... I wish to use the term 'Keynesian theory' in a restricted sense, concentrating on the quantifiable formulas that were actually used for giving advice on economic policy, in order to be as clear as I can on what I mean by failure. The theory failed in the sense that it produced quantitative answers that proved to be wrong. His *central* premises that monetary policy could stabilise interest rates and that inflation could be ignored in situations characterised by high unemployment rates proved to be such poor approximations to reality that the multipliers which rested on them were simply and frankly, useless... In 1966, many believed we had a theory that could quantitatively link fiscal policy and economic performance with enough precision for it to be responsibly applied in drawing up economic policy. In 1977, we know we don't have one."

II.3. The change in the stance of economic policy in the eighties

The experience of the difficulties and limitations of economic stabilisation policies in the seventies and the new focus on rational expectations led to a radical change in the way economic policy was perceived in the eighties. On the theoretical level, research based on the idea of rational expectations had taken an explicitly dynamic standpoint in analysing the intertemporal decisions of economic agents. According to this view, to

reach their objectives, agents choose optimum strategies (contingent plans for the present and future variables which they control), taking as a given their expectations about the way they believe other economic agents will behave, and thus the equilibrium of the models is formally equivalent to the solution of a game in the mathematical sense. As Lucas said in 1980, this approach led the focus of economic policy to be addressed once again in terms of stable and predictable rules which the government should use to achieve its objectives, minimising – but not entirely eliminating – the margin of discretion of the authorities (see "Rules, Discretion and the Role of the Economic Advisor", in S. Fisher (ed.). *Rational Expectations and Economic Policy,* University of Chicago Press, 1980).

In applied economics, fiscal policy in the seventies was generally directed at maintaining employment, while monetary policy took on a restrictive nature for the purpose of controlling inflation. The mix of these two policies managed to reduce inflation and unemployment rates somewhat, but the authorities had to confront, after the second steep rise in oil prices, the worsening in budget problems caused by non-stop growth in the deficit, increased transfer payments to the unemployed, growth in the disequilibrium between government investment and consumption, and considerably higher expenditure on servicing debt, due to the shortfall in saving and the rise in interest rates. The changes in the stance of economic policy, primarily in the United Kingdom and the United States but also in other OECD countries, were partly inspired by the growing misgivings about fine-tuning policies based on short-term forecasts, whose unreliability was patent, and partly by the acknowledgement of the lack of incentives for capital formation, due to the increasing proportion of private saving absorbed by the budget deficit, whose sustained increase during the seventies was simply a manifestation of underlying trends and problems.

Towards the end of the seventies, it became clear that much of the deterioration in public finances was permanent and that monetary and fiscal measures with short-term effects would not make it go away. The persistence of budget shortfalls in all OECD countries underscored the need to develop a coherent and systematic strategy for the medium term, by putting into practice rigorous demand policies, geared towards promoting macroeconomic stability, and reform-oriented supply policies aimed at enhancing the growth potential of economies. National savings ratios and investment had fallen notably in previous years to levels considered insufficient to guarantee economic growth rates capable of reducing unemployment in the medium term. The productivity of the economy and private saving had been eroded by the high replacement rates of unemployment benefits and pensions and by the high marginal rates

of income taxes. Private investment was hurt not only by the rise in energy costs but also by lower productivity and wage increases, which raised unit labour costs in real terms, and by the higher real interest rates needed to combat inflation. Moreover, in most of the industrialised countries, the view was that public revenue absorbed a very high proportion of GDP and that tax rates could not be raised without generating significant distortions in the incentives of private agents. Consequently, a consensus arose that the consolidation of public finances should be pursued primarily by reducing the weight of public expenditure in output.

After the first oil crisis, the expansion of Western economies reached a ceiling in 1979, with the second jump in oil prices, from $13 to $34 per barrel. The second crisis was triggered by the overthrow of the Shah of Iran, and the decision by the Ayatollah Khomeini to suspend oil exports in December 1978, setting off a crisis that continued until the autumn of 1979 (Yergin, p. 685). The loss of Iranian production was partly offset by the increase in output in other countries. But why did a 4 % to 5 % shortage of oil lead to a price increase of 150 %? The answer lies in the panic that swept consumers, owing to five factors: *a)* demand pressure was expected to continue due to the economic expansion then under way; *b)* the rescinding of Iranian contracts affected oil companies differently, and buyers left with a supply shortfall rushed to the free market to guarantee their supplies; *c)* the co-ordination among oil-consuming countries was too weak to control the rise in prices, while oil companies gave priority to their trade interests via price rises; *d)* exporting countries took advantage of the situation to increase their revenue, and *e)* the uncertainty surrounding the possible spread of the Iranian revolution to other Moslem countries, in particular Iraq and Saudi Arabia, led to excessive stockbuilding – as occurred in 1973 – that exacerbated the temporary shortage of crude on markets.

After the price hikes imposed by OPEC on oil consumers in 1978 and 1979, the OPEC's next and last round of price increases was prompted by the war that broke out between Iran and Iraq in late 1980. On September 23, the second day of the war, Iraq attacked the giant refinery at Abadan, the world's largest, and continued to bomb it and other Iranian oil facilities, causing severe damage. Iran's response was similar, choking off nearly all Iraqi oil exports. In its initial stages (Yergin, p. 711), the war removed almost 4 million barrels per day from the market: 15 % of total OPEC output and 8 % of the crude sold in non-Communist countries. Spot prices immediately jumped to $42 dollars per barrel amid the market's nervousness. In December 1980, the OPEC oil ministers met in Bali and reached an agreement to set the official price of oil at $36 a barrel for all members except Saudi Arabia. In the time elapsed since the price rise of late 1978 the Saudis had been increasingly pushing up their production

and sales on the market in order to keep prices stable and to restrain the upward pressures of other OPEC members. In the new situation, Saudi Arabia announced it would raise its daily production by 900,000 barrels to the very limit of its capacity. At the same time, market trends were not as buoyant as in 1979 and 1973. Inventories were high and demand was contracting, and non-OPEC producers, hoping to gain market share, began lowering their official prices. As a result, OPEC production in 1981 was 27 % less than in 1979, falling to its lowest level since 1970. Finally, in October 1981, the OPEC came to a new agreement to reunify the prices of member countries: Saudi Arabia would raise its price from $32 to $34 dollars a barrel, and the others would lower their price of $36 to $34. This would be OPEC's last price increase for at least a decade.

The poor performance of the economies of all industrialised nations as of the mid-seventies contributed, as noted, to the spread of a greater scepticism regarding the effectiveness of traditional stabilisation policies, emphasising the need for co-ordinated monetary and fiscal policies to serve the common aim of macroeconomic stability in the medium term. The change in the stance of economic policy in the eighties was very gradual. The recession in industrialised countries in the early eighties had been accompanied by unprecedented expansion in public spending, derived from the greater volume of transfers (mainly welfare benefits and interest payments on debt) and government consumption to the detriment of investment.

The medium-term financial strategies applied by various OECD countries from 1979 onwards involved a combination of monetary and financial strategies whose objectives were nominal stability and stimulation of productive supply. Monetary policy, which was given priority, was geared towards reducing inflation and moderating long-run inflation expectations. Fiscal policy was primarily designed to support monetary policy objectives, to restore spending controls and to gradually eliminate the budget deficit. These medium-term strategies were justified not only by their beneficial effects on future growth, but even by their positive consequences in the short run through various mechanisms: the reduction in real interest rates would stimulate investment and bolster business confidence; lower inflation rates would enliven consumption thanks to the effect of the increased financial wealth, in real terms, of consumers; tax reforms intended to promote supply without detriment to government revenue would encourage saving, capital accumulation and the labour supply. In any case, it was believed that, once the budget deficit had been trimmed to a level that was sustainable in the long run and that the positive effects on supply had had time to run their course, the play of automatic stabilisers would suffice to allow fiscal policy to smooth the normal cyclical fluctuations in the level of economic activity, while discretionary measures

should be reserved for situations of deep recession and be easily reversible once the recessive phase was overcome.

In the first half of the eighties, the supply policies applied in the industrialised countries began to bear fruit, albeit more slowly than expected. A good example can be found in energy policies. The oil prices that resulted from the increases in 1978 led to a significant change in energy production and consumption. On the supply side, coal and nuclear power began to ease the previous excessive dependence on oil in nearly all countries and, additionally, in the production of crude itself many exploration and drilling projects became profitable at $34 per barrel, whereas they had not been when the price was $13 per barrel. On the demand side, the energy-saving policies of governments, the price and tax increases and technological innovations aimed at reducing oil consumption also helped to ensure a more efficient use of energy.

But above all it was the slackness in economic activity in Europe and Japan that made it increasingly difficult for OPEC to continue controlling the world crude market. In 1977 it produced two-thirds of the oil consumed by non-Communist countries. In 1982, for the first time, the production of non-member countries exceeded the total output of OPEC. In March of that year, the organisation, which had placed 31 million barrels a day on the market in 1979, set a limit of 18 million barrels, establishing quotas for each member country except Saudi Arabia, which would adjust its production to support the cartel (Yergin, p. 719). Although the quotas were meant to be a temporary measure, by the autumn of 1982 it became clear that demand was not recovering, that non-OPEC countries were gaining a larger share of the world market and that prices could not be sustained. The quotas would have to be lowered. In February 1983 the British National Oil Company (BNOC) cut the price of North Sea crude by $3 dollars a barrel, setting the price at $30. In early March 1983, OPEC reduced the official price per barrel from $34 to $29 and agreed to limit output to 17.5 million barrels daily. This was the first time prices had been cut since the creation of OPEC in 1960, and its future stability depended on the honesty of the 12 member countries in complying with their individual quotas and on the willingness of the thirteenth member (Saudi Arabia) to act as the regulator of total supply.

Meanwhile, the continental European countries and Japan -whose demand policies had become more stringent after the last unsuccessful attempts at both joint and individual expansion, such as the plan agreed at the Bonn summit in July 1978 and France's individual efforts in 1981 and 1983 – were weathering very low levels of activity and lacked the determination to carry out such radical supply-side policies as those applied in the United States and Britain. The goal of these policies was to stimulate productive capacity and the efficient allocation of resources by im-

proving incentives and factor inputs and by eliminating the intervention and rigidities that hampered the activities of private agents. Nevertheless, some depicted this medium-term objective in terms of immediate results, capable of revitalising economic growth in the short run, thanks to tax cuts, the liberalisation of markets and inflation control, which would swiftly raise saving and investment, the labour supply and risk-taking. Such were the promises of the conservative governments of Thatcher and Reagan on taking office in 1979 and 1980, respectively. To some, the uncertain results of the policies applied in the United States and Britain, which combined an improvement in the efficiency and expectations of growth in the medium term with unquestionable recessive effects in the short run, counselled greater caution in other economies. This was especially the case of continental European countries and Japan, where such policies were undertaken with fewer pretensions in an attempt to make the economy more flexible and to strengthen job creation through structural reforms, among which those concerning public revenue and expenditure played a leading role.

II.4. Fiscal policy in the past 15 years

In the eighties, the economic policy priority in most of the OECD countries was to reduce the budget deficit, largely on the basis of trimming public spending as a percentage of GDP (see Howard Oxley and John P. Martin. *Controlling government spending and deficits: trends in the 1980s and prospects for the 1990s,* OECD Economic Studies, num. 17, 1991). Nonetheless, the early years of the decade were marked by an across-the-board rise in government spending as a percentage of GDP. Effective budget deficits rose substantially in the OECD countries as a whole, climbing from 2 % of GDP in 1979 to 4 % in 1983, while the structural deficits estimated by the organisation's secretariat narrowed only marginally. The effects of the fiscal policies applied within the framework of the medium-term strategies designed by member countries were of contrary signs depending on the case, but had unquestionable repercussions in the short run. In the United States, budget strategy had been dominated by tax cuts to encourage supply, but tax receipts were not preserved and the budget deficit rose notably, producing positive demand effects on the level of activity, both in the US economy and in the rest of the world as of 1983, but also raising interest rates, with negative effects on investment in all countries. Other economies, such as Japan, Germany and the United Kingdom, trimmed their structural deficits considerably, while there was a certain widening in the deficits of the other countries.

Nonetheless, the meagre progress in reducing effective budget deficits continued to fuel the growth in public debt as a percentage of

GDP, real interest rates remained high, and real growth was low, especially in European countries, which appeared to be trapped by the lack of vitality of highly regulated and uncompetitive economies. Government spending in the OECD countries as a whole showed no signs of diminishing until 1984, and only gathered force with the economic expansion in the second half of the decade, albeit without falling below the levels of 1979. This expansion was also a contributing factor in the one percentage point increase in the weight of public revenue in GDP, despite the generally negative effects of the new fiscal reforms on tax collection. Together with the buoyancy of the US economy, another factor in the recovery of growth in Europe and Japan was the fall in the price of oil, which took place in 1986 but had been in the making for two years.

In 1984 the OPEC's quota system was still not working, even though it had become more restrictive. The organisation continued to lose market share and, moreover, the market was contracting. Infringements of the established quotas became increasingly evident, and the organisation even contracted an international auditing firm to supervise accounts and quotas. Some countries did not furnish the necessary information. Others resorted to bartering oil for weapons, airplanes, industrial plants, etc., thus further flooding the market. By the mid-eighties, OPEC once again faced the need to lower oil prices. Saudi Arabia could not continue to sustain a quota system that other members were infringing. Saudi Arabia's revenues went from $119 billion in 1981 to $36 billion in 1984 and $25 billion in 1985, whereas government spending had soared, generating an enormous budget deficit that was exhausting its currency reserves. The situation became so critical that the presentation of the budget was postponed indefinitely. After giving numerous futile warnings, the Saudis decided to change their strategy. Rather than defending the official price, they began to defend their own output on the market through a new agreement with the oil companies, under which refiners were guaranteed a profit per barrel sold on the market and the excess obtained on the effective sales price was the margin left for the producing country. Given the weight of Saudi Arabia in OPEC and in the world market, the other countries had to follow suit. OPEC decided to fight to preserve its share in the world market, and this implied a sharp cut in the price of crude, because the countries with greater production capacity (Saudi Arabia and Kuwait) held sway over those who wanted to keep the price at $29 per barrel by setting lower quotas (Algeria, Libya and Iran) (Yergin, p. 751).

The new strategy led to unheard-of prices. The price of the bellwether West Texas Intermediate plunged from its peak of $31.75 per barrel in late November 1985 to $10 a barrel in subsequent months. In April Vice President Bush, who had started his career in the oil business, commented during a visit to Saudi Arabia that, if prices remained so low, the Unit-

ed States would impose a tariff on imported oil to support the national output of crude. The Japanese announced they would follow suit to protect their own programme of energy diversification and to obtain extra revenue for the Treasury. Nothing could be more offensive to the exporting countries than the prospect that the revenue they lost because of the fall in crude prices would lead not to lower prices for final consumers, who could stimulate demand, but to higher fiscal revenue for the Treasuries of the importing countries. In May 1986 various oil ministers meeting in Saudi Arabia agreed that a price of $17 to $19 a barrel could be sustained under a new system of quotas, but the Saudis announced that theirs would no longer be the only output to bear the necessary adjustments to sustain prices. Finally, at an OPEC meeting in Geneva in December 1986, a reference price of $18 per barrel was set, based on a composite price of several different crude oils and a new quota system contemplating a total of 17.3 million barrels a day. This signified $11 less per barrel than the previous official price and, in real terms, left the price at the level prevailing before the second great price hike of the seventies in 1978.

This OPEC “tax cut” led to a transfer of $50 billion to the consuming countries, which served to stimulate economic activity in all Western countries and, to a lesser extent, also help to alleviate inflationary strains. The expansionary impetus of this slide in crude prices on industrialised countries, especially in continental Europe and Japan, was decisive to the consolidation of economic recovery, which had been very modest in the early years of the eighties. The medium-term policies pursued until then had managed to achieve the objectives of restoring the health of public and corporate finances by raising the profitability of private investment, thanks to wage restraint and the creation of the foundations for an upturn in economic growth, but this upturn had not entirely firmed. A basic instrument in this progress towards nominal stability in European countries was undoubtedly the smooth functioning of the EMS, as we shall later see in greater detail, despite various realignments. Nevertheless, the EMS was also criticised as an overly rigid corset, preventing greater expansion in aggregate demand, which many considered necessary to achieve higher economic growth. Lastly, the lack of vitality and job-creating capacity that had characterised the economies of continental Europe would also be shaken by the programme for the creation of the internal single market, scheduled to culminate at the beginning of 1992 with the lifting of all barriers to the free flow of people, goods, services and capital among EC member countries. All these factors were at play in the notable advance in economic growth in the final years of the eighties, which was to last until the recessions of 1991 and 1993 in the United States and Japan, respectively.

In the history of the EMS, between its creation in March 1979 and the deep and successive crises it was to weather as of September 1992, two

stages can be distinguished. The first lasted until 1987 and was characterised by the application of anti-inflationary policies in member countries and the unquestionable leadership of the Bundesbank. It is generally acknowledged that the EMS functioned satisfactorily during this stage, creating the conditions for an appreciable downward convergence in the inflation of member countries, despite the successive realignments in the parities of their currencies. The first stage of the EMS was marked by three main achievements (Padoa-Schioppa, pp. 66-70): free trade was preserved in a difficult period, the macroeconomic convergence of member countries improved, and their currencies were sheltered against the possible differential repercussions derived from the dollar's appreciation. In these achievements, the capital controls of all EMS countries, except Germany and Holland, were a decisive factor, providing a certain leeway for the independence of national monetary policies. Nonetheless, the system's very success in lowering inflation also revealed the limitations derived from its lopsided concept, in that the convergence of interest rates towards German rates was less than expected.

In the second stage, the impossibility of reconciling the requirements of the free circulation of goods and capital with the autonomy of monetary policy in a system of fixed exchange rates was to become evident (Padoa-Schioppa, *op. cit.,* p. 121). Constant exchange rates and perfect capital mobility among a given number of countries leave only a degree of freedom for deciding the monetary policy stance that affects all concerned. When there is a hegemonic country which uses this degree of freedom to set its own monetary objective, the rest have to accept the consequences of the pursuit of this objective. Alternatively, the objective may be set by the consensus of all the countries. The French authorities expressed their growing rejection of the hegemonic solution, but the Bundesbank would not agree to relinquish its autonomous monetary policy to subject it to a joint decision. This second stage began with the approval of the Single European Act, providing for the creation of an internal market with full freedom of movement of people, goods and capital in the year 1992, and it was characterised by France's increasingly greater pressure on Germany for Europe's monetary policy stance to be decided jointly by all the EMS member countries, under which the system would no longer be dominated by the D-Mark but would become the embryo of monetary union. The Basle-Nyborg agreements of December 1987 were the turning point in the transformation of the EMS, which would culminate in late 1991 with the signing of the Treaty of European Union at Maastricht and the system's subsequent crisis.

In the course of the negotiations leading up to the signing of the Treaty of European Union, two opposing concepts were clearly expressed by those who viewed monetary union as a mid-way step towards the real convergence of European economies and those who believed

that, only after reaching a satisfactory degree of nominal convergence (first) and real convergence (later), should the countries willing to advance towards political union simultaneously undertake the project of monetary union. The result was a compromise between the two extremes: on the one hand, it was accepted that monetary union was a necessary step towards promoting greater social and economic integration among the nations of Europe, but, on the other hand, strict conditions, in the form of nominal convergence criteria to guarantee macroeconomic stability, were set for the countries interested in taking part in the union. As might be expected, the agreement failed to satisfy the advocates of the two extremes. Consequently, the convergence criteria were viewed as unnecessary by some and as insufficient by others for the process of achieving the monetary union which all allegedly desired. The tension between the two concepts of the monetary union process was left to simmer for nearly five years, with the EMS appearing to function satisfactorily between 1987 and 1992, while many viewed the system as the ideal instrument for co-ordinating economic policies and achieving almost automatically de facto monetary union.

At the end of the eighties, partly as a result of the favourable cyclical situation of the main economies, most industrialised countries had made solid progress in restoring their public finances to health, and this process was expected to continue with medium-term fiscal policy programmes aimed at attaining budgetary equilibrium. In the OECD as a whole, the budget deficit stood at around 2 % of GDP in 1989 for the first time since 1974: the deficit was somewhat less than 2 % in the United States and a little higher in European countries, while Japan had a surplus of more than 2 %. The weight of total expenditure in GDP had fallen since 1984 in the European OECD countries and Japan, while stabilising in the United States; at the same time fiscal pressure had risen by three percentage points in Japan and by approximately one point in the United States, and remained stable in European OECD countries. The attempt to subject fiscal policy to more or less binding rules in the medium term was a common feature in most of the countries.

In the nineties, the industrialised countries encountered new obstacles in the process of fiscal consolidation. On the expenditure side, despite a certain margin for reducing military spending, it became increasingly difficult to cut aggregate spending, due to the growing weight of interest payments and programmes providing welfare benefits and services on the basis of individual rights recognised by law, such as pensions and health care. On the revenue side, unless tax rates were raised, the capacity to increase tax receipts was limited, because the reforms undertaken in the eighties had already substantially widened tax bases and in many countries there were still pressures to reduce tax rates further.

Moreover, the deterioration in public finances in the early nineties had an undeniable cyclical component, derived from the slowdown in growth and from the subsequent recession which, with varying intensity, successively affected the United States (1991), European countries (1992-1993) and Japan (1993). The fiscal imbalance in nearly all countries – except Japan – at the beginning of the last recession limited the use of counter-cyclical fiscal policy, but fiscal deficits rose as automatic stabilisers started functioning and, in some cases, the structural deficit also rose. In the United States revenue stabilised as a percentage of GDP, while expenditure increased by three percentage points between 1989 and 1992. In Japan revenue fell slightly between 1990 and 1993, partly because of the fiscal reform, but it was once again the expansion in spending that caused its budget surplus to disappear in 1993 and deficits of close to 3 % to emerge in 1994 and 1995. In the countries of the European Union, expenditure also rose by somewhat more than one point, causing the budget deficit to increase by nearly four points.

The persistence of swollen budget deficits was viewed from the perspective of the decline in national savings ratios in all countries over the previous 20 years, with exception of the period 1986-1989, and the disequilibrium in public finances was considered the main culprit. The inability to achieve a satisfactory degree of fiscal consolidation in many countries had serious macroeconomic consequences: a lower level of potential output due to less gross fixed capital formation, lower growth in productivity, the sizeable weight of public debt in terms of GDP and of interest payments in the budget and, against the backdrop of a slowdown in economic activity, waning confidence of economic agents, due to the uncertainty surrounding the future course of economic policy.

In the European Union, the onset of the recession in 1992 gave way to a period of great exchange-rate instability, which shattered the illusion that the EMS guaranteed the success of the process of monetary union in Europe. Markets appeared to believe in the soundness of the process until 1992, reflecting a certain short-sightedness in their over-confidence in exchange-rate stability as the prelude to monetary union. The absence of realignments since 1987 (except the strictly technical adjustment of narrowing the lira's fluctuation band), despite diverging inflation rates and changes in competitiveness, had induced markets to believe the EMS could be the basic instrument for arriving at monetary union in Europe, as they assumed that exchange-rate discipline in itself would be motive enough to produce the real adjustments in the behaviour of private agents and in government policies that were needed if the convergence of European economies was to be attained in a framework of stability. This assumption proved to be false. Exchange-rate stability was seen as a sign that financial markets were backing a series of policies, which to a

great extent ignored the conditions for advancing towards macroeconomic stability, trusting the growing mobility of capital to provide a painless way of financing the disequilibria which these same policies were generating.

Too little discipline and a lack of co-ordination in the economic policies of the major countries amid the problems derived from Germany's reunification were to unleash the crises in the EMS. This demonstrated that the system, if lacking discipline and co-ordination, could not in itself guarantee exchange-rate stability, not only in the case of currencies whose economic fundamentals counselled a parity adjustment, but also in the case of those whose fundamentals were even better than those of the German D-Mark. Between 1989 and 1992 the policies implemented were inadequate, because monetary policy alone was made to bear the full weight of the goal of reducing inflation, without taking into account that the fiscal policies being applied could make macroeconomic stability very costly, if not impossible. National policies were not co-ordinated, because absolute priority was given to internal objectives without heeding the problems that this signified for the preservation of exchange-rate stability.

In spite of the difficulties that impeded progress in fiscal consolidation in the years of scant economic growth after the last recession, the conditions for narrowing the budget deficit were more propitious than in the early eighties in at least one aspect, because lower inflation rates in many countries gave monetary policy a greater margin of flexibility for supporting the recovery in activity. Once the signs of recession became evident and inflationary pressures began to ease, a more expansionary monetary policy was implemented and interest rates fell sharply. Later, as fiscal policy became more restrictive, interest rates were further cut.

Midway through the nineties the successive recoveries in economic growth in the United States, Europe and Japan have made it possible to resume the process of restructuring public finances to attain and preserve budgetary equilibrium in the medium term. Fiscal consolidation programmes now contain general guidelines that limit the authorities' margin of discretion, but the degree of effective restriction that these guidelines signify for the fiscal policies of the countries varies greatly (see IMF. *World Economic Outlook,* May 1996, Chap. III; and OECD *Economic Outlook,* December 1996). In the United States and Japan this restriction does not seem to have increased with respect to the programmes applied in the decade of the eighties and which did not prove to be as effective as initially expected. But in the countries of the European Union, the need to meet strict criteria of sound public finances for participation in economic and monetary union has signified a very effective limitation on the authorities' discretion in recent years.

In the current cyclical upturn, it is generally accepted that the economic policy errors of the eighties must be avoided. As the recovery firms, monetary policy should take a more neutral stance and fiscal policy will have to continue applying and reinforcing the programmes aimed at reducing the budget deficit. In the medium term, these measures will ensure that interest rates remain low, that potential output will grow by releasing resources for the private sector, and that the public sector will be better equipped to cope with the longer-run budget problems, such as those derived from the ageing of the population, and with the eventual need for economic stabilisation in future recessions. There is also a broad consensus that public finances should be made sounder through permanent spending cuts, especially in programmes whose long-term sustainability is questionable. Nonetheless, the political power of pressure groups poses an enormous obstacle to undertaking the legal reforms necessary to check the increase in this expenditure. In view of these difficulties, new formulas have been proposed to make such changes possible, by reinforcing budgetary discipline through rules that range from writing a balanced budget into the constitution (the United States) to stability pacts (the European Union) and fiscal responsibility laws (New Zealand).

But, in addition to these points, where economic policy objectives coincide (medium-term focus, price stability and sounder public finances as priority goals in monetary and fiscal policies, more flexible markets and structural reforms as conditions for enhancing the growth potential of economies), there are many other points on which economists disagree. In the area of fiscal policy, debate focuses on the efficiency of its stabilising function in cyclical fluctuations and the margin of discretion which the authorities should have to develop their fiscal policy. It is acknowledged that temporary increases in budget deficits as percentages of GDP, around a constant average level (which should be determined under criteria of efficiency and equality between generations in the distribution of taxes and public debt), may be useful to ensure a stable structure of taxes and spending, absorbing part of the impact of extraordinary shocks, such as occurred in the case of Germany's reunification, and smoothing normal cyclical fluctuations through automatic stabilisers. But there are doubts about the discretionary use of short-term fiscal measures to fine-tune the level and structure of aggregate demand. At the same time, it is generally agreed that rules should be established to safeguard the long-run sustainability of public finances by limiting the authorities' discretion, but it is acknowledged that governments must have enough margin for manoeuvre in the short run for responding to unforeseen shocks. The estimation of the magnitude of the stabilising effects that fiscal policy has had in the main industrialised countries in the course of recent decades is relevant to the discussion of these issues. This estimation is presented in the chapters that follow.

III

THE UNITED STATES

III.1. Economic growth and stabilisation policies

The growth and fluctuations in the world economy and the focus of economic policy in recent decades have been strongly influenced by the dominant weight of the economy of the United States and its leadership in the international co-ordination of economic policies. The objective of the new approach to economic policy with the arrival of Kennedy in the White House in 1961, and which had a powerful impact on the economic policy stances of all countries, was to eliminate cyclical fluctuations, keeping effective economic growth as close to its potential as was compatible with price stability. The purpose was to eradicate the "cyclical mentality" which, in the view of the president's advisors, was a barrier to full employment, because it only considered economic policy capable of smoothing fluctuations, but not of preventing them (see James Tobin. *The New Economics One Decade Older,* Princeton University Press, Princeton, 1972, pp. 7-9). However, the expansionary fiscal policy recommended by the president's advisors was not immediately adopted, because it did not call for preventing a recession but to stimulate an economic expansion already in progress. Nor was it carried out through an increase in public spending, this being the advisors' preferred option, because political opposition prevented the debt-financing of this increase. Instead a tax reduction was introduced, which offset the automatic rise in fiscal pressure resulting from income tax progressivity.

As a result of this activist fiscal policy, revenue as a percentage of GDP fell sharply in 1964, just as economic growth was quickening. By contrast, expenditure acted as a compensating element – exactly as the president had promised in order to gain the approval of Congress for the tax cut – although it was not enough to prevent a small increase in the deficit in 1964, which was offset the following year. The expansion in the American economy tended to pick up speed in the first half of the sixties,

advancing at an average growth rate of around 5 % between 1961 and 1966. However, in the next four years, growth slowed, the average growth rate of GDP was halved, and the decade ended with the recession of 1970. On average in the sixties, growth was 3.8 % and its standard deviation was 1.9 %, marking much more brilliant results than those of the previous decade, even though they failed to fulfil the aspirations of the "new economy" advocated by the president's economic advisors.

The role of economic policy in driving growth in the early years of the decade and in the inflationary pressure that followed has been a subject of great debate between Keynesians and monetarists. For the Keynesians (see R. J. Gordon, in Feldstein, 1980, pp. 102 and 131), the tax cut of 1964, along with other earlier fiscal incentives, had the merit of taking the economy to full employment, whereas the increases in public spending on the Vietnam war and the Great Society programmes of the Johnson administration were the chief causes of price acceleration. Monetary policy took an accommodating stance, in that interest rates remained fairly stable, allowing the money supply to grow with demand, but a more restrictive policy, even keeping the money supply constant in relation to potential GDP, would not have led to the collapse of economic growth. The monetarists' interpretation is entirely different. Economic expansion did not cause, but was caused by, the increase in the money supply. They acknowledge that this increase took place as a result of budget deficits, but they argue that its effects would have been the same had the reason for increasing the money supply been different. The slight rise in interest rates was due, they say, to the financing of the deficit, the increase in investment and inflationary expectations (Tobin, *op. cit.,* pp. 64-65).

No matter which interpretation of the origin of economic expansion is more correct, the growing inflation that accompanied it, which the monetarists attribute to the acceleration in the money supply as of the early sixties, and the Keynesians to the subsequent low level of unemployment, was a serious setback to the reputation of the "new economy", because the public had formed huge expectations about the promises of full employment, sustained growth and price stability, only to find itself disappointed. According to Tobin *(op. cit.,* pp. 34-36), things began to change course in 1965, when the Pentagon did not inform either the Council of Economic Advisors, the Budget Office or the Treasury of the rapid pace of defence contracts and spending. Even so, the Council of Economic Advisors recommended to the president that a tax increase be announced and incorporated in the 1966 budget, but Johnson feared that Congress would cut the spending on his Great Society programmes instead of raising taxes. The burden of the adjustment then fell on monetary policy, which demonstrated its restrictive capacity with a certain delay, albeit convincingly, by subjecting the economy to the "credit crunch"

episode in late 1966, which reduced economic growth in 1967 to 2.9 %, one half of the previous year's figure. In 1966-1967 public spending burgeoned, while revenue, which had significantly recovered in 1966, lost its impetus a year later. It was then that the stop-go policy was developed with the greatest intensity.

While the White House and Congress were wondering whether or not to raise taxes, the moderation in growth in 1967 caused an outcry in the sectors most affected by the credit restrictions, who accused the Federal Reserve of setting off the recession. The authorities took the easiest way out: they gave an expansionary turn to monetary policy and, in doing so, set a precedent of accommodating increasingly higher inflation, which was to last until the early part of the eighties, because later attempts to reduce monetary growth in order to control inflation prompted immediate and irate criticism by those who felt harmed by the measure, and these protests led the Federal Reserve to abandon its anti-inflationary policy prematurely. But fiscal policy also took a more activist stance, and the measures which for some were an example of the stabilising effects of fine-tuning, such as the successive withdrawal and enactment of tax incentives on investment (Tobin, *op. cit.,* p. 35), were for others merely distorting investment decisions and destabilising aggregate demand.

The necessary tax increase to cope with the growth in spending was not approved until June 1968 and, according to the almost unanimous opinion of analysts, was an unmitigated failure, in contrast with the generally favourable opinion of the tax cut of 1964. The Revenue and Expenditure Control Act of 1968 placed a 10 % surcharge on the net amount of personal and corporate income tax, announcing that it would be eliminated a year later, and, therefore, by not substantially affecting the permanent income of consumers, the view is that it had no appreciable effect on consumption decisions. By contrast, fearing an overly deflationary effect, the Federal Reserve relaxed its monetary policy somewhat, thus contributing to the nominal expansion of aggregate demand, which was already very intense, and to price acceleration, which caused total revenue in 1968-1969 to rise substantially in relation to the real situation of the American economy, which was showing signs of slower growth.

Excessive growth in nominal demand, inflation and the loss of competitiveness led to a gradual deterioration in the surplus on the US economy's current account in the decade of the sixties. If investment abroad is included, the American balance of payments was clearly headed towards a deficit, which undermined the strength of the dollar, heightening the instability of the international monetary system. This system, conceived at Bretton Woods as a regime of fixed but adjustable exchange rates, in practice functioned very rigidly. The privileged position of the dollar as the system's sole currency of reserve enabled the United States to finance its

external deficits with national currency, albeit under the restriction of maintaining its convertibility into gold as the anchor of the system. The sharp rise in the money supply in the United States in the sixties, price acceleration and the tendency towards an external deficit together weakened the dollar, gave rise to speculative capital movements and stimulated monetary expansion in other countries by enlarging their reserves of dollars, which had to a great extent been used to finance US investment in these countries.

After Nixon won the elections in 1968 and once the fears regarding the recessive effects of the temporary tax increase that year had been dispelled, the Federal Reserve decided it was time to step on the monetary brake once again in order to fight inflation. By the end of 1969, growth in the money supply (M2) had been lowered to 2 % and aggregate demand had stopped growing, and in 1970 the US economy entered a recession. Tax policy also had a restrictive focus in 1969, in that the corporate tax deduction for construction investment was eliminated, the tax surcharge was extended to the end of 1969 and then again until mid-1970 (although in the second extension it was lowered to 5 %), and social security contributions were raised. On the expenditure side, the abrupt quickening in 1966-1967 was halted in 1968 and then decreased in 1969, when spending fell by 0.3 percentage points in terms of GDP, which also contributed to the forces pushing the US economy towards a recession.

The decade of the seventies, with the two oil shocks produced by the drastic price hikes of 1973 and 1978-1979 that had simultaneous recessive and inflationary effects on the world economy, is known as the decade of stagflation, because the two recessions associated with these shocks and the general escalation in prices in the first half of the seventies considerably reduced the average economic growth over these ten years and greatly increased price levels. However, the opinion of most analysts is that both recessions were deliberately induced by the authorities in an attempt to control the inflation that economic policy itself had earlier encouraged (see Tobin: “Stabilization Policy Ten Years After”, *Brookings Papers on Economic Activity,* 1, 1980, p. 21).

From the Keynesian point of view, the hallmarks of the decade were of three kinds: first, the increasing opening-up and integration of the American economy abroad; second, the collapse of the international monetary system introduced at Bretton Woods and its replacement by a floating exchange-rate system with non-coordinated interventions by the authorities of different countries, and, third, the predominance of shocks in prices, supply and demand, different from the shocks produced by economic policy and by the domestic industrial sector (Tobin, p. 26). In fact, in the Keynesian interpretation of these events, fiscal policy had a generally stabilising influence in the seventies, in that automatic stabilisers at-

tenuated the two recessions, especially the severe slide in activity in 1974-1975, and active counter-cyclical policies encouraged the two subsequent recoveries (Tobin, p. 54). The analysis of the cyclical sensitivity of fiscal variables in these years partly supports this opinion. It is debatable whether fiscal policy made a positive contribution to the upturns in the US economy, but there seems to be no question that it had stabilising effects, tempering both the recessions and the expansions.

From the standpoint of those who criticised the excessive activism of economic policy, these interventions created confusion in the decisions of private agents and they hampered more than helped the recovery of a stable and non-inflationary growth path. Even though the prestige that fiscal policy previously enjoyed in the regulation of aggregate demand had diminished greatly by the beginning of the seventies, the Nixon administration did not abandon it entirely. In fact, when the end of the recession of 1970 seemed uncertain in 1971, the Council of Economic Advisors used the now familiar concept of the full employment budget surplus to persuade Congress of the wisdom of enlarging spending programmes. A small tax cut, approved at the end of 1971, reinforced this more expansionary focus of fiscal policy, complementing the stimulus to demand provided by monetary policy. The weight of total public expenditure in GDP evolved counter-cyclically, exerting a stabilising influence on private-sector disposable income and on aggregate demand, by falling nearly one percentage point of GDP during the acceleration of economic growth in the years 1972-1973 and rising by nearly three percentage points of GDP in the recessive period of 1974-1975. By contrast, the increase in total revenue obtained from income taxes in 1974 had a destabilising effect, which changed sign in 1975.

President Ford, like Nixon four years earlier, implemented an expansionary fiscal policy after deciding to stand for election. In January 1975 Ford sought a tax cut, and in March Congress decided to co-operate with the president by approving the Tax Reduction Act of 1975, which established a 10 % cut in taxes on personal income earned in 1974 to a maximum of $200 per household, a credit of up to $50 for welfare recipients and an additional reduction in taxes in 1975. The effects of these measures began to show in the summer of that year, and, according to R. J. Gordon *(op. cit.,* p. 154), were positive both in their timeliness and in their magnitude. However, the analysis of the stabilising effects of fiscal policy, discussed later in this chapter, reveal that the magnitude of the income tax cuts was excessive, taking into account the deceleration in the other government revenue items. In comparison with the cyclical sensitivity of total revenue in the period 1967-1995 as a whole, the fall in 1975 produced a negative residual of a magnitude similar to that of 1964, these being the two most notable years in the sample. Other undesirable con-

sequences of the economic policies applied to sustain demand, in an attempt to counteract what were actually strains in supply, were the quickening in inflation and the weakening of the dollar.

In later years, the rapid rise in nominal income, caused both by real economic growth and by inflation, produced a fiscal drag of taxpayers towards taxable income brackets with higher rates. In the opinion of Feldstein, this effect of inflation paved the way for the political acceptance of the tax reforms of the following decade (see M. Feldstein. "American Economic Policy in the 1980s: A Personal View", in *American Economic Policy in the 1980s,* University of Chicago Press, 1994, pp. 5 and 17). Congress attempted to cushion this drag with fresh tax cuts, despite which the deficit continued to diminish, and by the end of the seventies budget equilibrium appeared to be a possibility. In 1977 the rise in total revenue as a percentage of GDP, which had been fuelled by the economic recovery of 1976, was halted, and in subsequent years increases of approximately 0.3 percentage points per year were recorded, regardless of the economic situation, which was expansionary in 1977-1978 and slowed in the following two years until the mild recession of 1980. By contrast, the weight of public spending in GDP continued to evolve countercyclically, falling in 1976-1978 and rising rapidly in 1979-1980.

The weakness of the dollar stemmed from the worsening in the US balance of payments, which began under the Ford administration as a result of the increases in oil prices and later reached worrisome proportions, due to the expansionary policies applied to pull the American economy out of the 1974-1975 recession and the absence of effective energy-saving measures. The Carter administration did not seem very inclined to support the exchange rate of the dollar, and the massive flow of dollars flooding international markets, partly from the revenue of oil-producing countries, pressured upwards the currencies considered the most solid – primarily the Swiss franc, the D-Mark and the yen – and even the pound tended to appreciate against the dollar, given the importance of London's City in world financial intermediation. At the same time, also as a result of the American balance-of-payments deficit and the surplus balances of Germany and Japan, these countries were being pressured by their trade partners to adopt a more expansionary economic policy in order to help relaunch economic growth and to correct the imbalances in world trade, this being a condition which the Carter administration considered essential to strengthen the dollar.

At the Bonn summit in mid-1978, agreements were reached on the expansionary fiscal policy measures that Germany and Japan should adopt and the restrictive and energy-saving measures which the United States intended to introduce, in addition to giving its backing to the initiative of European monetary co-operation. However, this attempt at interna-

tional co-ordination of economic policies would immediately encounter major difficulties. Only two weeks after the Bonn summit the dollar began to tumble, eventually depreciating by 18 % against the D-Mark over the following three months. The US authorities initially responded with a combination of interventions on foreign exchange markets and a gradual restriction in monetary growth in order to curb the speed of the depreciation. But, when the downward pressure on the dollar gained greater force in mid-September, the authorities believed a much more restrictive stance in economic policy had become necessary in order to check inflation and the budget and external deficits via fiscal measures and recommendations of voluntary limits on income and price increases. However, the announcement of these measures failed to alleviate exchange-rate tensions, which only began to recede when the Federal Reserve adopted severe internal and external measures at the beginning of November, raising the discount rate by one percentage point to a record high of 9.5 % and establishing a supplementary 2 % reserve requirement for deposits of more than $100,000 to limit the growth of domestic credit; and with swap agreements with other central banks and IMF credits to defend the dollar's exchange rate. These measures had an immediate and substantive impact, causing the dollar to appreciate in the course of November by 11.5 % against the yen, 11.8 % against the D-Mark and 15.5 % against the Swiss franc. The disinflation efforts led by monetary policy had begun in 1977, in the final months of the Burns mandate, when the Federal Reserve reduced the growth in M2 to less than 10 %, after nearly three years of expansion at rates of more than 12 %. Later, during the Miller mandate, monetary growth held at around 8 %. After the unpredictable lag in the effects of monetary policy which monetarists generally use in their explanations, the reduction in the inflation rate occurred in 1981, and shortly afterwards the recession of 1982. But it is not easy to explain why the beginning of the recession was delayed four years after monetary policy became gradually more restrictive in 1977. In nearly all previous cases, the fall in activity had been preceded by a significant decline in the growth rate of the money supply a year earlier, and followed by the effects on prices with an average lag of roughly two more years. The reason for the abnormal delay on this occasion lies, according to monetarists, in the increase in the velocity of circulation (more than 12 %) during these years, which offset the effect of monetary deceleration.

What finally produced the recession was the abrupt fall in the velocity of circulation, which began in 1981, prompted by the impact of this fall on interest rates. The rise in rates was now accompanied by a slide in inflation, leading to real rates of more than 10 % for the first time since the Great Depression. In the past 150 years of American economic history, the five previous episodes of real rates of more than 10 % were associated with serious contractions in the economy (such as those of 1839, 1920

and 1930). This time as well. Rates in real terms remained higher than 10 % for five quarters, and the rate of inflation fell to 5 % at the beginning of 1982. The productive branches more vulnerable to interest rates bore the burden of the adjustment. On the demand side, capital goods investment and exports were the components that most fell in the final quarter of 1981 and in the four quarters of 1982, with rates of –26 % and –15 %, respectively, because high interest rates induced an inflow of capital and the dollar's appreciation. The recession was concentrated in industry and agriculture, which depended more on investment and exports, and it hardly affected services. In July 1982 the Federal Reserve was the target of much criticism, and a foreign debt crisis was brewing. American banks had loaned heavily to countries in the Third World which, amid the rise in US interest rates and the dollar's exchange rate, threatened to default on their debt servicing and on the repayment of principal. The Federal Reserve then quietly decided to lower interest rates once again, abandoning its money supply target, although it did not officially announce this move until October, when it had already become obvious. At year's end, short-term rates had fallen by six percentage points, and long-term rates by four points.

US fiscal policy during the decade of the eighties was marked by the influence of the Reagan administration, in what came to be called Reaganomics. The central strand of the Reagan economic programme was less public intervention in the economy and greater incentives to private initiative. To place in its historical perspective the economic programme proposed by Reagan, who had broad support from voters, it should be borne in mind that economic policies often exert their effects with very long lags and that they constitute the reaction to economic trends which have also developed over the course of several years. The decade of the sixties was a period of relatively rapid economic growth. The social programmes begun by Kennedy and Johnson continued to expand in the seventies. The role of the federal government changed substantially, with its preponderant function of producing non-market services for the community losing ground as the function of redistributing national income and wealth came to prevail. Productivity had slowed in the late sixties, and this phenomenon continued in the seventies. Although the causes of this deceleration are hard to understand, one of the reasons was the erosion of incentives for people to work and to save. In turn this erosion was linked to the persistence of high and variable inflation rates and the high and growing marginal rates of income taxes. The Reagan programme was designed to restore these incentives and to strengthen economic growth [see Boskin (1987)].

Reagan's economic programme drew on diverse sources: monetarism, which advocated lower growth in the money supply in order to

control inflation; supply-side economics, which proposed lower taxation to reinforce the incentives to work and save; rational expectations, which postulated the superiority of fixed rules over the discretion of economic policy; and, finally, the deregulation ideas of exponents of the free market, who called for reducing government intervention in the economy in order to enhance private initiative. The policies put into practice by Reagan during his two mandates were primarily the following: *a)* he firmly supported the Federal Reserve's anti-inflationary monetary policy, despite the pressures for its abandonment during the 1981-1982 recession; *b)* he switched the budget priorities by strengthening defence spending and trimming other programmes; *c)* he carried out a far-reaching tax reform, lowering marginal rates and multiplying investment incentives; *d)* he continued the liberalisation and deregulation of markets that Carter had begun, and *e)* he changed the concept of what constitutes a reasonable economic policy for a market economy. This last point is what Boskin considers the major achievement of Reaganomics, because, only a few years before, price and wage controls, constant manipulation of aggregate demand via unexpected fiscal and monetary measures, subsidies, protectionism, financial intervention, etc. were considered effective economic policies"

Each of these policies was inspired by one of the "schools" of thought mentioned above, but none managed to get all it wanted. The monetarists complained that the control exerted by the Federal Reserve on the money supply was too erratic; supply-side economists said the tax cut was too late, too little and later counteracted by other measures; fiscal conservatives applauded the cuts in various spending programmes and the tax reform, but they were appalled by the magnitude of the budget deficit; the exponents of a smaller government role in the economy pointed out that public spending as a percentage of GDP had risen rather than declined during the Reagan mandate; and the advocates of economic policy rules in lieu of government discretion were distressed that not enough monetary policy rules had been institutionalised for drawing up the budget and its control or for permanently limiting expenditure, taxes and the budget deficit. It is perhaps the magnitude and persistence of the budget deficit where all the critiques of the Reagan administration's economic policy concur.

Although, from the standpoint of stabilisation policy, Reagan was the first president since Eisenhower to resist the pressures to use short-run economic policies for electoral purposes, by backing the Federal Reserve's strict monetary policy and raising some taxes during the 1982 recession, the enormous growth in the deficit that year marked a new level in the disequilibrium of public finances in comparison with the small deficit of the two previous decades (if the 1975 recession is excluded). Although

the rise in the deficit in 1982 was less pronounced than in 1975, its correction during the expansion that followed did not occur: whereas in 1978-1979 the balance of government accounts showed a slight surplus, the reduction in the deficit from the 4 % of 1983 (similar to the 1975 figure) was much more gradual and more limited, reaching a low of around 2 % of GDP in 1988 and then climbing again to an all-time high of 4.5 % of GDP in 1992. The roots of the higher level of the American budget deficit in the eighties have been attributed to three main factors: *a)* the Economic Recovery Tax Act (ERTA), which reduced marginal rates in 1981, 1982 and 1983 and established the future indexing, effective as of 1985, of taxable income brackets; *b)* the increases in several public spending items, not sufficiently offset by reductions in other budget captions, and *c)* the recession.

ERTA was designed to restrain – via cuts in nominal rates – the fiscal drag towards higher tax rates which inflation was causing in the fixed brackets until their indexation entered into effect in 1985. It was only intended, therefore, to freeze the direct tax burden. But, in working its way through Congress in 1981, the measure came to represent a greater tax reduction than its designers had intended. Reagan had proposed a 30 % tax cut over three years, but Congress, while lowering the reduction to 25 % over two and a half years, altered other aspects of the tax structure to make it more equitable, which signified a substantial additional loss in revenue with respect to the initial project. Even though Congress was also concerned about the jump in the budget deficit in 1982 and approved the Tax Equity and Fiscal Responsibility Act (TEFRA), which raised the taxes of other sources to offset the additional cut in the ERTA, the deficit nonetheless continued climbing as a percentage of GDP in 1983.

Part of the slide in revenue to lower-than-expected levels was due to forecasting errors or to deliberately upward biased estimates of the growth in nominal income, which exaggerated both the increase in real income and the future rate of inflation. The continuance of restrictive monetary policy conditions, despite the incipient recession, led to higher interest rates (the Federal Reserve had already warned Congress that this would inevitably happen if it passed a tax cut of the magnitude that was ultimately agreed) and rapid disinflation. As a result, the economic policy mix contributed towards the enlargement of the budget deficit, generating lower tax receipts than forecast (due to disinflation and the recession) and higher expenditure (due to the recession and, above all, to the sudden increase in interest expenses of nearly three percentage points of GDP, resulting from the initial increases in rates and the budget deficit and their later consolidation at historically high levels).

Other studies emphasise the rise in government spending in real terms, which in 1984 was approximately 15 % higher than what Reagan's

advisors had foreseen at the beginning of his mandate. If this rise in expenditure is discounted, the increase in the budget deficit vanishes. The spending items that grew most between 1980 and 1984 were government consumption (defence spending) and social security benefits, with each of these captions growing by around 1 % of GDP, and interest expenses, whose weight in GDP rose by three percentage points. From the viewpoint of cyclical adjustments, spending advanced in a stabilising manner in the first half of the eighties, but the big increases of 1980 and 1982 were not sufficiently offset by the small decrease of 1984. Moreover, revenue declined in 1983-1984 (and again in 1988) as a percentage of GDP, which was not consistent with the more robust pace of economic activity.

Just when the economy and economic policy-makers appeared to have adapted to the existence of a trend budget deficit, the Gramm-Rudman-Hollis Act (GRHA) was introduced. This law of 1985 fixed a path for the budget deficit's reduction over subsequent years, so that, if Congress failed to reach an agreement on achieving this objective, nearly all expenditure items would be automatically cut. Although the majority of welfare expenses, interest payments on debt and the government's other legal commitments with private agents would have to be respected, the rest of the captions would be sufficiently reduced to meet the target. However, a large part of the budget planning effort generated by GRHA was devoted to skirting it, rather than complying with it, through various ways and means: accounting innovations, privatisations (for cash-basis budget accounts), payments deferrals, the offsetting of federal deficits with loans from social security funds, etc. Despite all, in 1987 and in 1988 in particular, total public spending as a percentage of GDP declined, and the budget deficit was lowered to 2 % of GDP in 1988 and to 1.5 % in 1989.

US monetary policy followed a very stable path as from the early eighties. During the second half of the eight years that Volcker headed the Federal Reserve until late 1987, and then in the first few years of Greenspan's mandate, the Federal Reserve managed to prevent the accelerations in the money supply which had on previous occasions made it necessary to undertake subsequent restrictive corrections. After giving the economy two quarters of monetary impulse at the beginning of 1983, the Federal Reserve held to a moderate growth pattern with a downward trend until 1989. The annual average increase in M2 was, in fact, less than 5 % between early 1987 and mid-1989. Real GDP and prices remained on the same path of mild expansion as the money supply. In this period, the economy had to grapple with the plunge in stock market prices in October 1987, which ended without any truly serious consequences due to the quick reaction of the Federal Reserve and its injection of liquidity into financial markets.

In mid-1988 the unemployment rate was below 5.5 % and plants were running at almost full capacity. The Federal Reserve decided to act preemptively to slow down aggregate demand to what it called a “soft landing”. To the surprise of many, the initial stages of the process were a success. The Federal Reserve brought M2 down to 2.6 % between mid-1988 and mid-1989 in order to achieve zero inflation, even supporting a draft law presented in Congress that made this a priority target of economic policy. But with 5 % growth in labour costs, as occurred in 1989-1990, this objective was not easily attainable. In August 1990, with the uncertainty caused by the Gulf crisis after Iraq invaded Kuwait and the surge in oil prices to $40 per barrel, consumers became cautious and restrained their spending. Despite all, the Federal Reserve persisted in its restrictive policy to the end of the year and the start of the next. The annualised increase in M2 had been 1.1 % in the fourth quarter of 1990 and continued sliding in January. The Federal Reserve seemed more concerned about the inflationary impact of the rise in oil prices than about the imminent recession, or else it was only looking at interest rates, which had been falling during the second half of 1990, especially in the final quarter. Thus arrived the recession of 1991, whose mildness and brief duration made it similar to the downturns of 1970 and 1980.

US fiscal policy in the nineties has been characteristised by a focus on reducing the budget deficit, which again climbed to more than 4 % of GDP in 1992, partly as a result of the recession of 1991, but also due to the expansion in total government expenditure in what was an election year, amid the uncertainties regarding the end of the recessive period that the American economy had been weathering. From the standpoint of cyclical adjustments, revenue has followed a path fairly independent of the economic situation: in 1989 the share of revenue in GDP rose by half a percentage point, despite the deceleration in real growth, and between 1990 and 1992 it remained constant as a percentage of GDP, without showing any sensitivity to the recession. Total general government expenditure, which had undergone a downward correction in 1988 and had held at this level in 1989, once again expanded notably in 1990 and continued on an expansionary path in 1991 and 1992, when the budget deficit reached 4.3 % of GDP. In the following three years, coinciding with the firm recovery in economic growth, the efforts to rein in the budget deficit continued, primarily through slower growth in total expenditure, whose weight in GDP returned to the level of the early eighties, thus reducing the deficit to less than 2 % of GDP in 1995.

In the early years of the nineties, the fiscal situation deteriorated notably in the United States largely due to three factors: *a)* net expenditure derived from the system of deposit guarantees was revised upwards due to the crisis that affected many savings and loan institutions; *b)* the estimates of the tax collection capacity of the current tax system were re-

vised downwards, and *c)* economic growth projections were appreciably lower than what had been foreseen in the Gramm-Rudman-Hollings legislation in its original (1985) and revised (1987) forms. Moreover, the difficulties in arriving at an agreement on specific measures for ensuring that the objectives of trimming the budget deficit envisaged in this legislation led to a postponement of their fulfilment and ultimately discredited their effectiveness. A fresh round of negotiations between the administration and Congress then began for the purpose of defining other medium-term objectives, which culminated in November 1990 in an agreement to put into practice a deficit-reducing programme over several years – the Omnibus Reconciliation Act of 1990 – whose aim was to reach budgetary equilibrium, without counting the usual social security surplus, in fiscal 1995. But this objective was again delayed in the Omnibus Budget Reconciliation Act of 1993, which proposed stabilising the federal government deficit at around 3 % of GDP in 1997, due to the less optimistic forecasts for economic growth, the vigorous expansion in several spending items such as health, and further downward revisions for estimated tax receipts. Nevertheless, the ongoing strength of the American economy since 1993 has led to better results than expected at the time, and the federal deficit for 1996 was estimated at approximately 1.5 % of GDP.

III.2. Revenue, expenditure and balance of government accounts

Over the past 35 years, the economic scale of the general government sector in the United States has risen to a lesser extent than in the other OECD countries. If measured in terms of the weight of total government expenditure in GDP, its behaviour in this period is reflected in the central part of Chart III.1 *(ut supra,* I.9, for the conventions used in the presentation of the charts). In 1960 total general government spending was slightly less than 27 % of GDP, and it now stands at around 37 % after reaching a high of nearly 40 % in 1993. Especially notable in this performance are the increases in 1966-1967 arising from the launch of the Great Society programmes and the spiralling defence spending on the Vietnam war, the temporary increases linked to the economic crises of 1974-1975, 1978-1982 and 1990-1991, and the consolidation in the early eighties of the higher total expenditure of the previous recession, primarily due to the defence spending of the Reagan administration. The average annual increase in total expenditure between 1960 and 1995 was nearly 0.29 percentage points of GDP, with a standard deviation of 1.14 points.

The weight of government revenue in GDP in the United States continued to rise with a certain lag and to a lesser extent in comparison with

government spending, giving rise to recurrent budget deficits, which climbed substantially during downturns and then disappeared in upturns, or at least until 1978. However, the expansion in spending between 1978 and 1982 was not financed by an equivalent increase in revenue, and thus the trend level of the budget balance went from close to equilibrium to a persistent deficit of nearly 3 % of GDP, as shown in the grey line at the lower left-hand side of Chart III.1 (the black line represents real GDP growth in the American economy between 1961 and 1995). This same chart shows that government revenue, which represented 27.7 % of GDP in 1960 and approximately 35 % in 1995, fell in 1964-1965 because of the Kennedy-Johnson tax cut, and later rose swiftly – temporarily in part – to finance social and military spending in the second half of the sixties. Thereafter, except for the short-lived impact of recessions and tax reforms, the rise in the weight of revenue followed a fairly stable upward course until 1987, before tapering off over the past ten years. The average annual increase in total revenue as a percentage of GDP in the period 1961-1995 was 0.2 percentage points, with a standard deviation of 0.82 points.

The basic results of the estimates of the cyclical sensitivity of total revenue and expenditure and of general government net lending (+) or net borrowing (–) in the United States for the period 1961-1995 are presented in Table III.1. Revenue does not reflect a well defined cyclical sensitivity, and its positive sign (stabilising) can only be said to be different from zero with a 19 % margin of error. Moreover, this relationship between government revenue and economic growth was totally unsystematic, as suggested by the low estimated correlation coefficients. The recursive estimations of the cyclical sensitivity coefficient are stable, but the RSS test of the residual sum of squares exceeds the 5 % confidence bands between 1972 and 1977. Total government expenditure, by contrast, reflects an appreciable cyclical sensitivity (–0.34) of a stabilising and systematic nature (R^2_a=0.37). The residuals of this regression have an appreciable first-order correlation (0.29) which, if remedied by introducing an AR(1) term in the equation, produces an estimated cyclical sensitivity coefficient of –0.39, close to the previous one. The recursive estimations of the cyclical sensitivity coefficient are stable. General government net lending (+) or net borrowing (–) in the United States shows a cyclical sensitivity of 0.43, largely due to expenditure. The estimated correlation coefficient is relatively high (0.47), while the residuals of this regression are not significantly correlated. The recursive estimations reveal that the cyclical sensitivity coefficient of the balance of government accounts has remained stable, at least as of the mid-seventies.

Although the cyclical sensitivities of revenue, expenditure and the balance of government accounts have not undergone any significant

changes in the past 30 years, the recursive estimations indicate that their values were somewhat lower in the early sixties. In order to ensure that the estimations reflect the cyclical sensitivity of fiscal policy at the present time, a backward selection was made for the most recent period, during which this sensitivity remained approximately constant. The following tables present the estimates referring to the period 1968-1995 which, according to the Chow test, is more appropriate than the overall period for which information is available. Table III.2 gives these estimations of the cyclical sensitivity of revenue, expenditure and general government net lending (+) or net borrowing (–) for the years 1968-1995, whose characteristics are very similar to the previous ones. It should be noted that the autocorrelation of the residuals in the regression of total expenditure suggested by the Durbin-Watson statistic is not appreciable in other tests. The results obtained for this restricted period are higher and more significant than the findings for the sample as a whole, indicating the greater stabilising capacity of fiscal policy since the late sixties.

III.3. Stabilising effects of disposable income

The stabilising effects on the private sector's gross disposable income exerted by the redistribution operations of general government, through its current revenue and transfers, is summarised in Table III.3 for the period 1968-1995. Both current revenue, whose cyclical sensitivity is estimated at –0.13, and current transfers in particular, with a cyclical sensitivity of –0.25, have helped to stabilise the gross disposable income of the private sector by a magnitude of 0.38 points for each percentage point of the cyclical fluctuations in GDP. In the years 1968-1995 the gross disposable income of general government is estimated to have had a cyclical sensitivity of 0.38, with a standard deviation of 0.08 and a 0.41 correlation between its fluctuations and those of real growth. There is a notable first-order correlation (–0.41) between the residuals of this regression, which may be corrected by introducing a MA(1) term in the equation, which lowers somewhat the estimated value of its cyclical sensitivity (0.32). According to the estimations in Table III.3, the cyclical sensitivity of private-sector gross disposable income had the same magnitude and opposite sign of that of general government, while gross national disposable income showed no sensitivity at all and its fluctuations were totally independent of the fluctuations in the real growth of the American economy. The residual autocorrelation which exists in these regressions is remedied by introducing a MA(1) term, without affecting the values of cyclical sensitivity. The recursive estimations of these coefficients are stable. In other words, for each percentage point of deviation in the real growth rate with respect to its average, the real gross disposable

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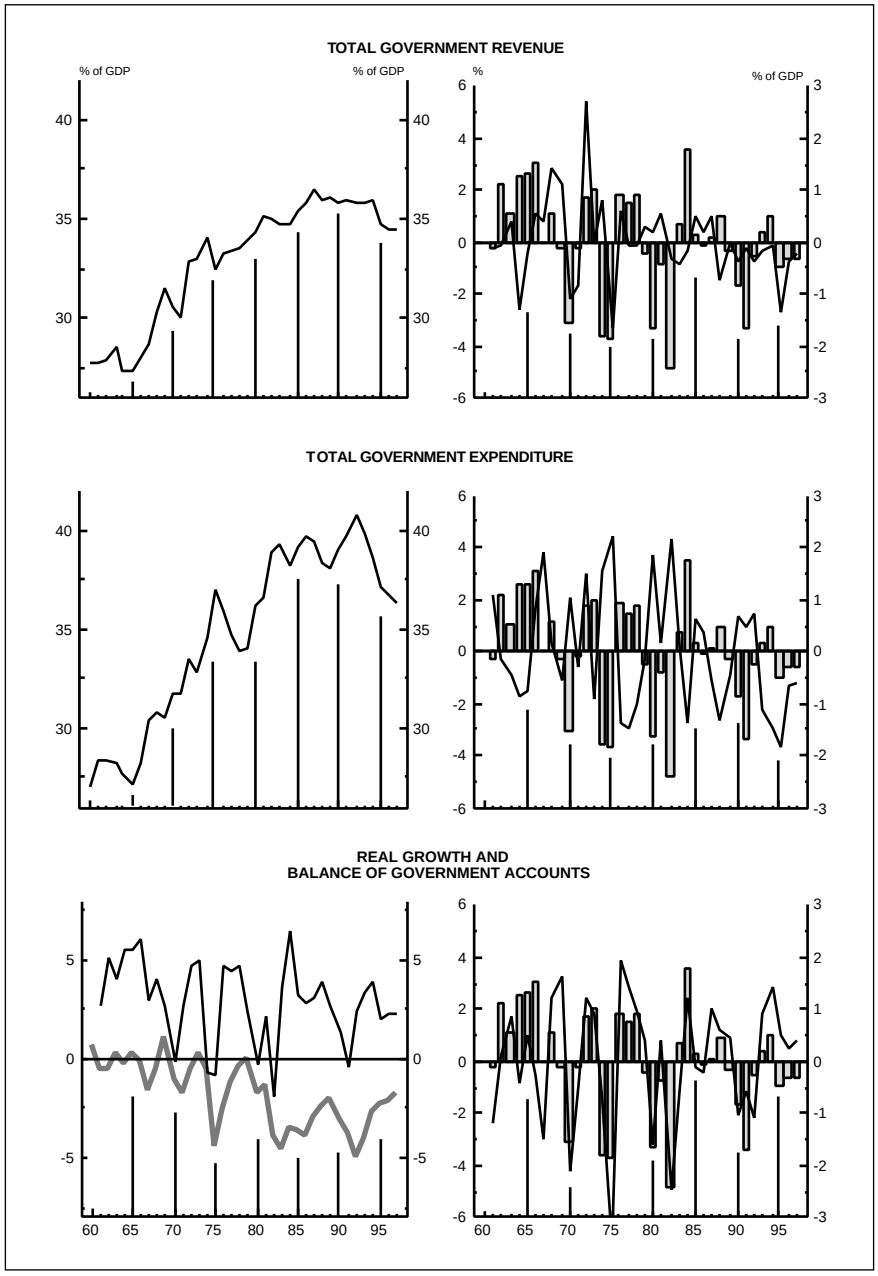


Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

TABLE III.1

UNITED STATES (1961-1995)
CYCLICAL SENSITIVITY OF GOVERNMENT REVENUE AND EXPENDITURE
Annual change as a percentage of GDP

	Average	*Standard deviation*	*Sensitivity*	*t*	*DW*	R_a^2
Total revenue	0.20	0.82	0.09	1.34	2.17	0.02
Total expenditure	0.29	1.14	–0.34	4.57	1.22	0.37
Net lending (+) or net borrowing (–)	–0.09	1.29	0.43	5.54	1.94	0.47
MEMORANDUM ITEM:						
Real GDP (rate)	2.98	2.09	—	—	—	—

income of general government deviated in the same direction as growth by 0.38 percentage points from its average change as a percentage of GDP. Given that the cyclical sensitivity of gross national disposable income was nil, this signifies that the gross disposable income of the private sector deviated in the same magnitude and in the opposite direction as that of general government, such that these cyclical adjustments smoothed the fluctuations (in levels) of the gross disposable income of all resident sectors other than general government.

The balance of the income redistribution operations of general government through current revenue and transfers is the sector's gross disposable income, whose trend behaviour and cyclical fluctuations in the period 1960-1995 are shown in Chart III.2, together with those of the other resident sectors (or private sector, to abbreviate) and those of the national economy of the United States. Gross national disposable income only differs from GDP at current prices with respect to the flows of income and net transfers from the rest of the world, whose magnitude is not significant for the United States, and therefore the trends and fluctuations in the gross disposable income of general government in terms of GDP are strictly complementary to those of the other sectors that constitute the national economy. Two periods may be distinguished in the trend behaviour of the sectoral breakdown of gross national disposable income as of 1960. To 1967 the share of general government held relatively stable around a level of approximately 20 % of GDP, after which it tended to fall, reaching somewhat more than 15 % of GDP in 1995, with fluctuations linked to the economy's cyclical position. Also worth mentioning with respect to the stabilising effects of fiscal policy on private-sector gross disposable income is that their magnitude and, above all, their correlation with economic growth were less to the year 1968 than afterwards. These differences mainly stem from the behaviour of current taxes on income and wealth.

TABLE III.2

UNITED STATES (1968-1995)
CYCLICAL SENSITIVITY OF GOVERNMENT REVENUE AND EXPENDITURE
Annual change as a percentage of GDP

	Average	*Standard deviation*	*Sensitivity*	*t*	*DW*	R_a^2
Total revenue	0.22	0.86	0.13	1.70	2.19	0.07
Total expenditure	0.24	1.17	–0.41	5.40	1.47	0.51
Net lending (+) or net borrowing (–)	–0.02	1.38	0.55	7.24	2.42	0.66
MEMORANDUM ITEM:						
Real GDP (rate)	2.58	2.07	—	—	—	—

The structure, trend behaviour and cyclical fluctuations of the principal components of general government current revenue and transfers are shown in Charts III.3 and III.4, respectively, following the presentation criteria explained in the last section of Chapter I. In the sixties, the taxes linked to production and imports, current taxes on income and wealth, and other current revenue fluctuated around nearly constant levels. The increase in the weight of current revenue with respect to GDP was somewhat more than two percentage points and is explained by the growth in social security contributions. In the seventies, the weight in GDP of taxes linked to production and imports initially continued to rise, reaching 8.7 % in 1971, but later moved in the opposite direction and their share of GDP diminished continually until reaching 6.8 % in 1979 before recovering slightly to 7.3 % in 1981. Current taxes on income and wealth remained practically constant, with considerable cyclical fluctuations around a stable level of somewhat more than 13 % of GDP. Social security contributions gave the greatest upward impulse to the level of current revenue, rising from 5.7 % of GDP in 1968 to 8.4 % in 1981. In the eighties, the weight of general government current revenue in GDP continued to increase more or less at the same rate as from the late seventies and propelled by the same component, namely social security contributions. Current taxes on income and wealth and taxes linked to production and imports recorded flat growth as a percentage of GDP.

The cyclical sensitivity of current revenue in the period 1968-1995 is estimated at 0.13, which only proves significantly greater than zero with a 10 % margin of error, and the correlation with real economic growth is almost nil. The recursive estimations show a diminishing value in the cyclical sensitivity coefficient, never significantly different from zero. It can therefore be concluded that the contribution of general government revenue to the stabilisation of private-sector disposable income had a posi-

TABLE III.3

UNITED STATES (1968-1995)
STABILISING EFFECT OF DISPOSABLE INCOME
Annual change as a percentage of GDP

	Average	*Standard deviation*	*Sensitivity*	*t*	*DW*	R_a^2
GENERAL GOVERNMENT:						
Current revenue	**0.22**	**0.86**	**0.13**	**1.70**	**2.19**	**0.07**
Taxes on production and imports	–0.01	0.20	–0.03	1.91	1.19	0.09
Income taxes	0.03	0.67	0.16	2.97	2.23	0.22
Social security contributions	0.14	0.18	0.00	0.23	1.40	0.00
Other revenue	0.05	0.56	0.00	0.00	1.44	0.00
Current transfers	**0.37**	**0.63**	**–0.25**	**7.45**	**2.18**	**0.67**
Welfare benefits	0.28	0.56	–0.23	8.82	1.29	0.74
Subsidies	0.00	0.08	–0.00	0.27	1.88	0.00
Interest payments	0.09	0.19	–0.03	1.59	0.75	0.05
Other transfers	0.00	0.21	0.01	0.66	2.99	0.00
Gross disposable income	**–0.15**	**1.20**	**0.38**	**4.47**	**2.72**	**0.41**
PRIVATE SECTOR:						
Gross disposable income	**0.14**	**1.18**	**–0.39**	**4.79**	**2.73**	**0.45**
NATIONAL ECONOMY:						
Gross disposable income	**–0.01**	**0.27**	**–0.00**	**0.21**	**2.46**	**0.00**
MEMORANDUM ITEM:						
Real GDP (rate)	2.58	2.07	—	—	—	—

tive sign, albeit rather weak and disconnected from the fluctuations in growth. Taxes linked to production and imports had a negative cyclical sensitivity of –0.03, with a t-ratio of 1.91 and a correlation of 0.09 with growth. The residuals of the regression have a positive first-order correlation (0.35), which is corrected by introducing a MA(1) term, without affecting the estimated value of the cyclical sensitivity coefficient. The recursive estimation shows that the cyclical sensitivity of these taxes remained stable. Current income and wealth taxes have positive cyclical sensitivity (0.16) of a stabilising sign with a margin of error of less than 1 % and with a correlation of 0.22 between its fluctuations and those in economic growth. This regression poses no major problems of residual autocorrelation. The recursive estimation reveals that the cyclical sensitivity coefficient remained sufficiently stable, although the RSS test of the residual sum of the squares crosses the 5 % confidence threshold in the years 1974-1977. The weak correlation between the fluctuations of current tax-

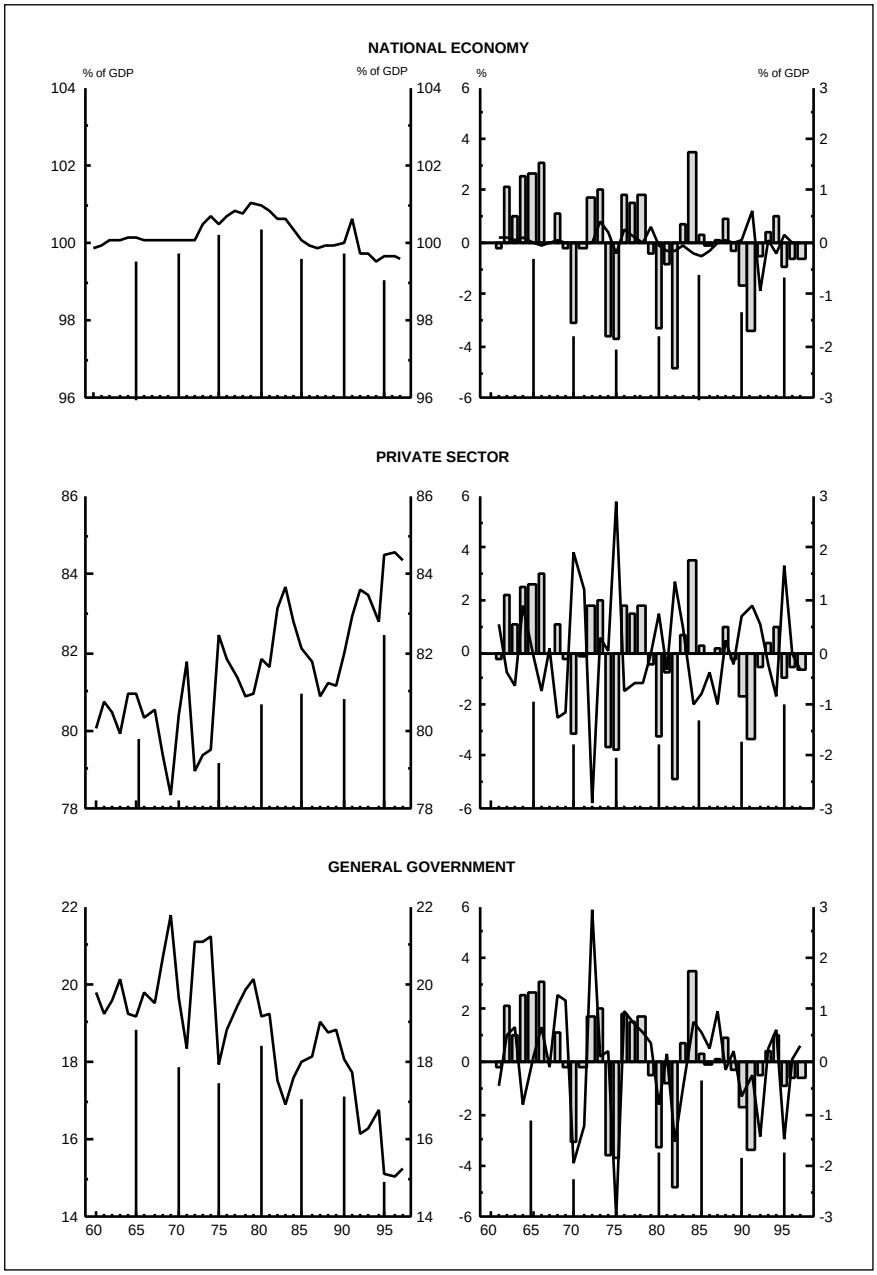
es on income and wealth and those in growth appears to be due to the many discretionary changes made in their regulations, giving rise to a succession of atypical residuals of considerable magnitude, albeit diminishing over time. Social security contributions in the period 1968-1995 do not reflect any well defined cyclical sensitivity or any correlation with economic growth. As seen in Chart III.3, except in the case of several one-off adjustments of a discretionary nature (1966, 1973), the fluctuations in this variable were very limited, despite a notable trend expansion. Lastly, the group formed by other current income reflected nil cyclical sensitivity and nil correlation with growth.

In current transfers (see Chart III.4), only welfare benefits – and to a much lesser extent effective interest payments – recorded any significant expansion in their weight as percentages of GDP in this period. As occurred in other countries, the growth in welfare benefits, which in the United States was concentrated in the period 1966-1975, was not accompanied by an increase of the same magnitude in current revenue to finance them without eroding government saving. The general government borrowing requirement generated by this item led to greater indebtedness and later to the increase in interest payments, which in the United States occurred in the first half of the eighties. Welfare benefits, after doubling their level as a percentage of GDP between 1966 (5.7 %) and 1975 (11.7 %), stabilised at less than 12 % (except for the temporary rise in the recessive period 1982-1983) until the downturn at the beginning of the nineties, rising again to more than 14 % from 1992 onwards. The share of production subsidies in GDP hardly varied, nor by extension did they record cyclical fluctuations, as seen in Chart III.4. The effective interest paid by general government increased their relative weight in GDP by somewhat more than two percentage points, representing an average of 0.09 per year, with a standard deviation of 0.19. Lastly, other current transfers, primarily to the rest of the world, also remained very stable, at 0.2 % to 0.3 % of GDP since 1960, with the exception of 1991, when the United States received external support to finance the expenses caused by the war in the Persian Gulf.

The cyclical sensitivity of current transfers as a whole in the years 1968-1995 is estimated at –0.25, of an unequivocally stabilising sign, with a fairly high correlation (0.67) between its fluctuations and those in growth. The residuals of the regression do not appear to be correlated, and the coefficient of cyclical sensitivity remained stable. Social security benefits reflected a cyclical sensitivity of –0.23 and a correlation of 0.74 with growth. A positive first- (0.30) and second-order (0.33) correlation exists between the residuals of the regression, which is corrected by introducing AR(1) and MA(1) terms in the equation, without affecting the estimated value of its cyclical sensitivity. This coefficient is stable when

CHART III.2

UNITED STATES
GROSS NATIONAL DISPOSABLE INCOME AND ITS BREAKDOWN BY SECTOR



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

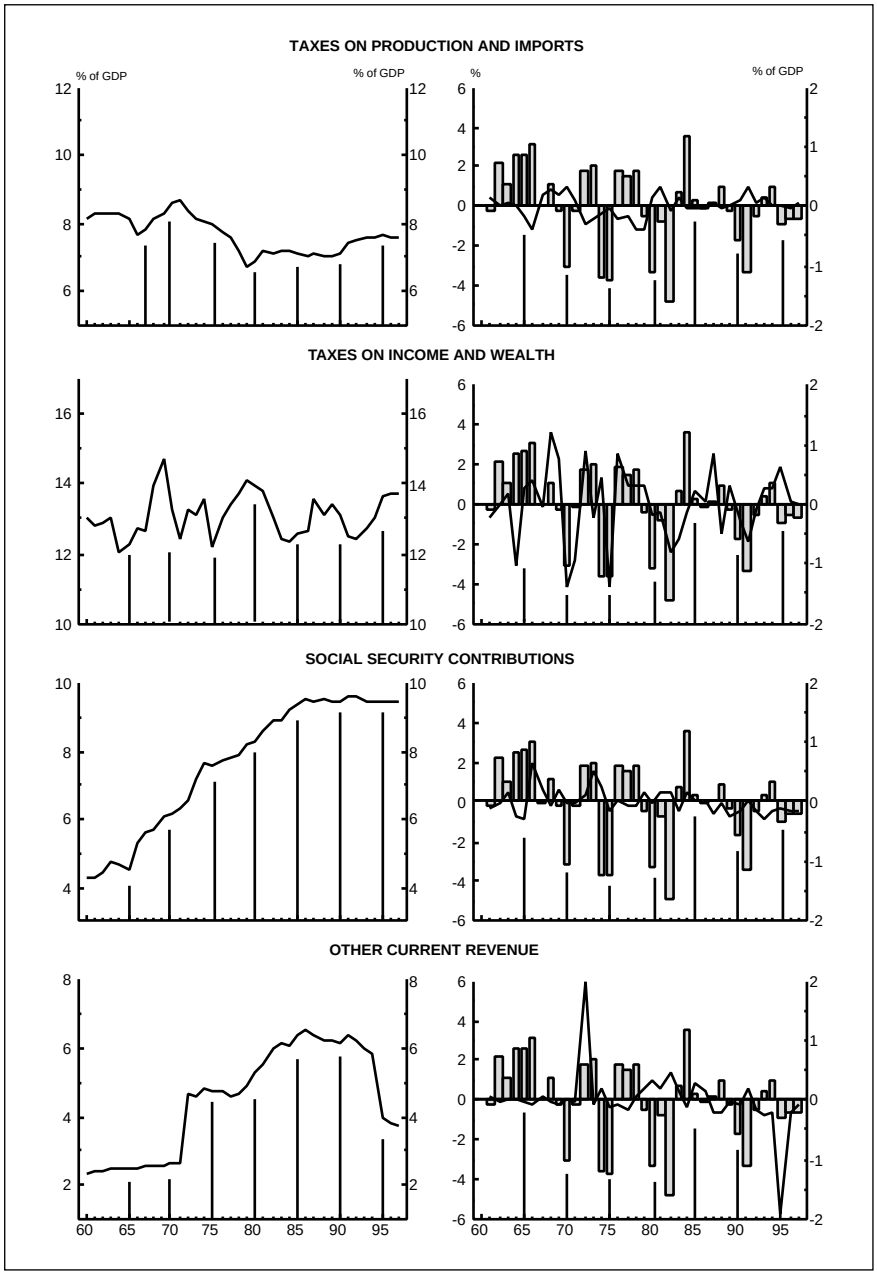
estimated recursively, ranging between –0.19 and –0.23. Production subsidies had no well defined cyclical sensitivity, because their fluctuations were of scant magnitude and totally independent of the fluctuations in growth. The cyclical sensitivity of general government effective interest payments was –0.03, of a negative sign with a 12 % margin of error and a negligible correlation (0.05) with growth. There is a strong positive first- (0.61) and second-order (0.32) correlation between the regression's residuals, which can be corrected by introducing an AR(1) term in the equation, thus reducing to –0.02 the value of the cyclical sensitivity coefficient. The other current transfers show no cyclical fluctuations worthy of mention, thus lacking a stabilising effect on private-sector disposable income.

III.4. Stabilising effects of nominal expenditure and real demand

According to the definitions of the stabilising effects set out in Chapter I, fiscal policy directly helps to stabilise the aggregate expenditure (at current prices) of the economy if general government spending on goods and services (consumption and investment at current prices) fluctuates less than aggregate expenditure or, in other words, than the spending of other sectors. Given that the behaviour of prices or deflators of expenditure reflect a great inertia, the stabilisation of aggregate spending implies the stabilisation of demand and output at constant prices. In this section, therefore, we shall study the stabilising effects of government and private consumption of goods and services in relation to their respective gross disposable incomes, i.e. the consumption/saving and investment/financing decisions of general government and the other resident sectors, as well as their impact on the stability of output. Table III.4 summarises the main findings of the estimates obtained for the cyclical sensitivity of the variables that reflect these decisions in the period 1968-1995.

Chart III.5 shows the trend behaviour of national consumption and its private and public components as percentages of GDP, at current prices, in the left-hand column. The column to the right presents the fluctuations in real growth (in bars, measured in the left scale), and the fluctuations in national consumption and its components at current prices (grey line) and at constant prices (black line), measured in the right scale. Note that, except in certain years marked by strong relative price adjustments that notably altered the structures of the deflators, the fluctuations in real and nominal terms show a high degree of conformity. The charts in the left-hand column show that in the decades of the sixties and seventies national consumption at current prices fluctuated around a constant level of 80 % of GDP, climbing in the eighties by around four percentage points of GDP and then stabilising in recent years. The relative shares of private

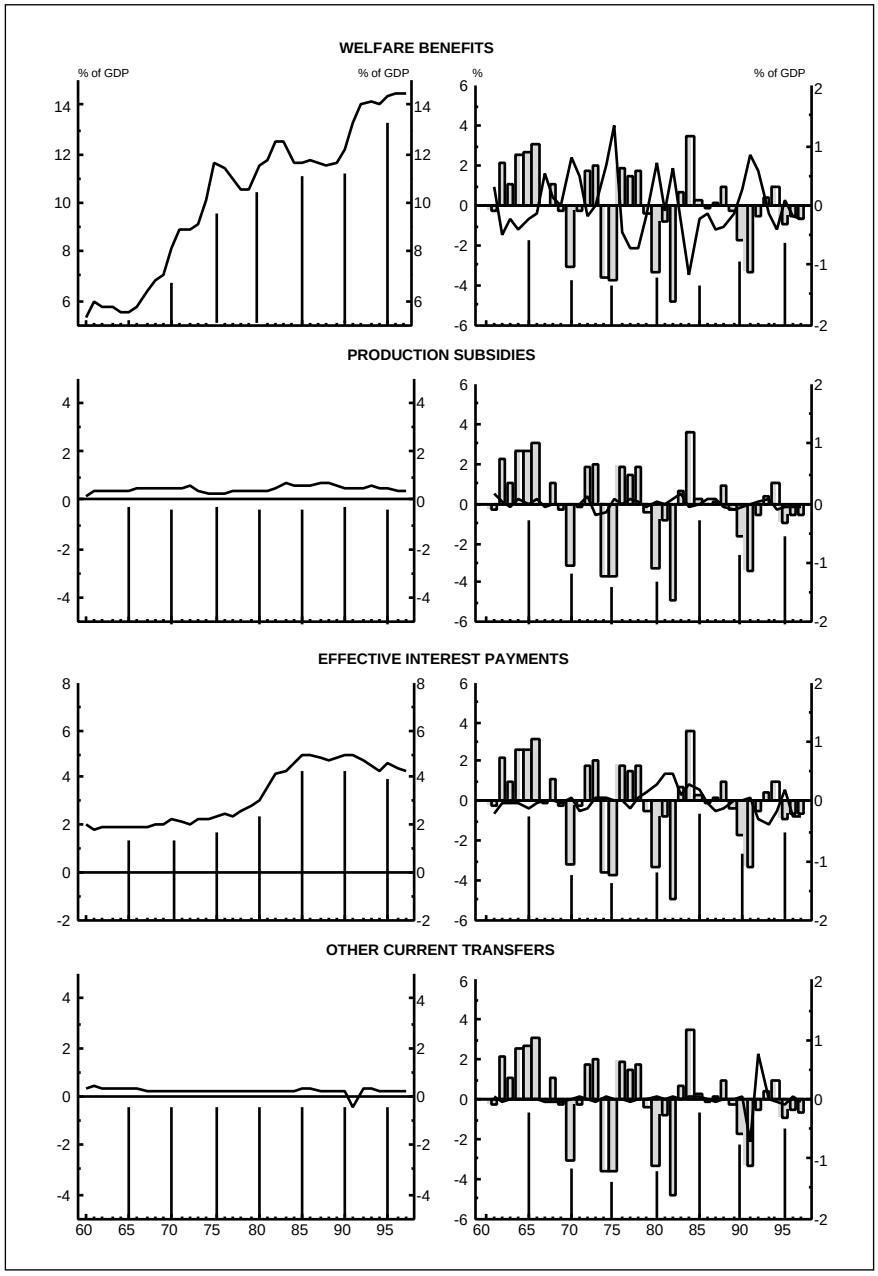
UNITED STATES
CURRENT REVENUE OF GENERAL GOVERNMENT



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

CHART III.4

UNITED STATES
CURRENT TRANSFERS OF GENERAL GOVERNMENT



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

and government consumption were more variable in this period. Until 1967 private consumption tended to lose weight in demand at current prices, while government consumption remained more stable to 1965, but then increased sharply in the two subsequent years due to the escalation in military spending on the Vietnam war. These changes were more a result of the tendency of the deflators than of changes in the structure of real demand. From 1982 onwards, the weight of private consumption in aggregate demand tended to rise, a tendency that has continued to the present. Government consumption remained more stable until 1991, and since then its share has shown a pronounced decline.

Expenditure in government consumption in the period 1968-1995 reflected a cyclical sensitivity of –0.17, with a 0.52 correlation with growth, identical to the results estimated for the cyclical sensitivity of consumption at constant prices. However, this regression produces residuals with a high first- (0.57) and second-order (0.47) correlation, which can be corrected by adding the terms MA(1) and MA(2) to the equation, which raises the coefficient of estimated cyclical sensitivity (in absolute terms) to –0.21. The recursive estimation of this coefficient is stable.

Expenditure in private consumption showed an average cyclical sensitivity of –0.23 in the years 1968-1995, with a standard deviation of 0.05 and a correlation of 0.47 with economic growth. These values, higher and more significant than those obtained for private consumption at constant prices, indicate that the fluctuations of the deflator of private consumption relative to GDP were generally of the same sign as those of the weight of real private consumption in real GDP. The recursive estimations of these coefficients are stable. In sum, it can be concluded that, on average in the period 1968-1995, the stabilising effects of expenditure in private consumption on the aggregate demand of the economy were greater and more systematic than those of real private consumption on real demand and output.

Expenditure in national consumption, the sum of private and government consumption, recorded a cyclical sensitivity of –0.4 and a high correlation (0.61) with growth. No significant residual correlation is found in this regression, and the recursive estimation shows that the cyclical sensitivity of this variable remained stable. To summarise, it can be said that national consumption had a stabilising effect on aggregate demand and output, offsetting approximately three-fourths of the fluctuations of a contrary sign recorded in gross capital formation, while the rest was absorbed by net external demand (exports minus imports).

The consumption spending decisions of general government and households and their cyclical fluctuations must be seen in relation to the trends and fluctuations in their disposable income, resulting in fluctua-

tions of their gross saving. Chart III.6 illustrates the behaviour of gross national saving and its breakdown by sector. Until the early eighties, the national saving rate was stable, because the increase in private saving counteracted the trend decline in government saving. However, the change of sign in government saving in 1982-1983, which reached negative values of close to 2 % of GDP, and the additional slide in private saving by nearly four percentage points of GDP between 1984 and 1987 gave rise to a considerable fall of some six percentage points in the national saving rate between 1979 and 1987. Since then national saving has fluctuated in the region of 16 % of GDP, with offsetting movements in private and public saving.

As to the private sector's consumption and saving decisions, the stabilising effects of private consumption expenditure on aggregate demand and output were approximately proportional to the stabilising effects of fiscal policy on private-sector gross disposable income, and thus the response of expenditure to income took the form of stable marginal propensity to private consumption during the period in question. As a result, private-sector saving was also "stabilised" in a proportion similar to the stabilisation of the sector's disposable income, and this tended to heighten the dependence of the private sector on borrowing for its investment expenditure during cyclical upturns as well as on the lending of its surplus saving in recessions. The cyclical sensitivity of private saving was –0.16, which is only significantly less than zero with a 10 % margin of error, and its correlation with growth is almost nil. The first-order autocorrelation (–0.3) between the residuals of this regression is corrected with a MA(1) term without notably affecting the estimated coefficient of cyclical sensitivity (which becomes –0.19). The recursive estimation shows that the value of the coefficient remained stable, although it was somewhat greater in absolute value in the seventies.

Meanwhile, the average cyclical sensitivity of government saving in the period 1968-1995 was 0.56, with a standard deviation of 0.08, and a correlation of 0.66 with growth. This regression has a first-order residual autocorrelation (–0.37), which is remedied with an AR(1) term, without affecting the estimated cyclical sensitivity coefficient (0.54). The recursive estimation indicates that cyclical sensitivity remained stable. Consequently, gross national saving showed a cyclical sensitivity of 0.40, with a standard deviation of 0.07, and a correlation of 0.53 with growth. There are no autocorrelation problems in this regression's residuals. The recursive estimation reveals that the value of the cyclical sensitivity of national saving was stable. Therefore, the same conclusion drawn above for the stabilising effect of national consumption on aggregate expenditure and output is repeated here from the standpoint of saving. The pro-cyclical sensitivity of national saving facilitates part of the financing necessary to meet the

TABLE III.4

UNITED STATES (1968-1995)
CHANGES IN THE BREAKDOWN OF NOMINAL EXPENDITURE AND REAL DEMAND
Annual change as a percentage of GDP

	Average	*Standard deviation*	*Sensitivity*	*t*	*DW*	R_a^2
National consumption	**0.12**	**1.05**	**–0.40**	**6.63**	**1.94**	**0.61**
Private	–0.20	0.69	–0.23	5.03	1.95	0.47
Government	–0.08	0.48	–0.17	5.45	2.03	0.52
Gross national saving	**–0.14**	**1.11**	**0.40**	**5.59**	**1.96**	**0.53**
Private	–0.06	1.01	–0.16	1.71	2.45	0.07
Government	–0.08	1.40	0.56	7.25	2.67	0.66
National investment	**–0.05**	**1.31**	**0.54**	**8.49**	**1.92**	**0.72**
Private	0.01	1.39	0.56	7.63	1.60	0.68
Government	–0.06	0.22	–0.01	0.65	1.13	0.00
National saving/investment balance (1 + 2 = 3 – 4 + 5)	**–0.09**	**0.71**	**–0.15**	**2.45**	**1.75**	**0.16**
1. Private	–0.07	1.75	–0.71	7.99	2.78	0.70
2. Government	–0.01	1.40	0.57	7.82	2.65	0.69
3. Exports	0.22	0.62	–0.05	0.79	1.05	0.00
4. Imports	0.29	0.60	0.10	1.82	2.43	0.08
5. Income and transfers	–0.01	0.27	–0.00	0.21	2.46	0.00
REAL DEMAND (a):						
Private consumption	0.25	0.65	–0.18	3.43	1.71	0.28
Government consumption	–0.24	0.52	–0.18	5.38	0.85	0.51
Gross capital formation	0.06	1.28	0.52	8.15	1.54	0.71
Exports	0.29	0.41	–0.02	0.44	0.81	0.00
Imports	0.37	0.49	0.15	4.18	0.98	0.38
MEMORANDUM ITEM:						
Real GDP (rate)	2.58	2.07	—	—	—	—

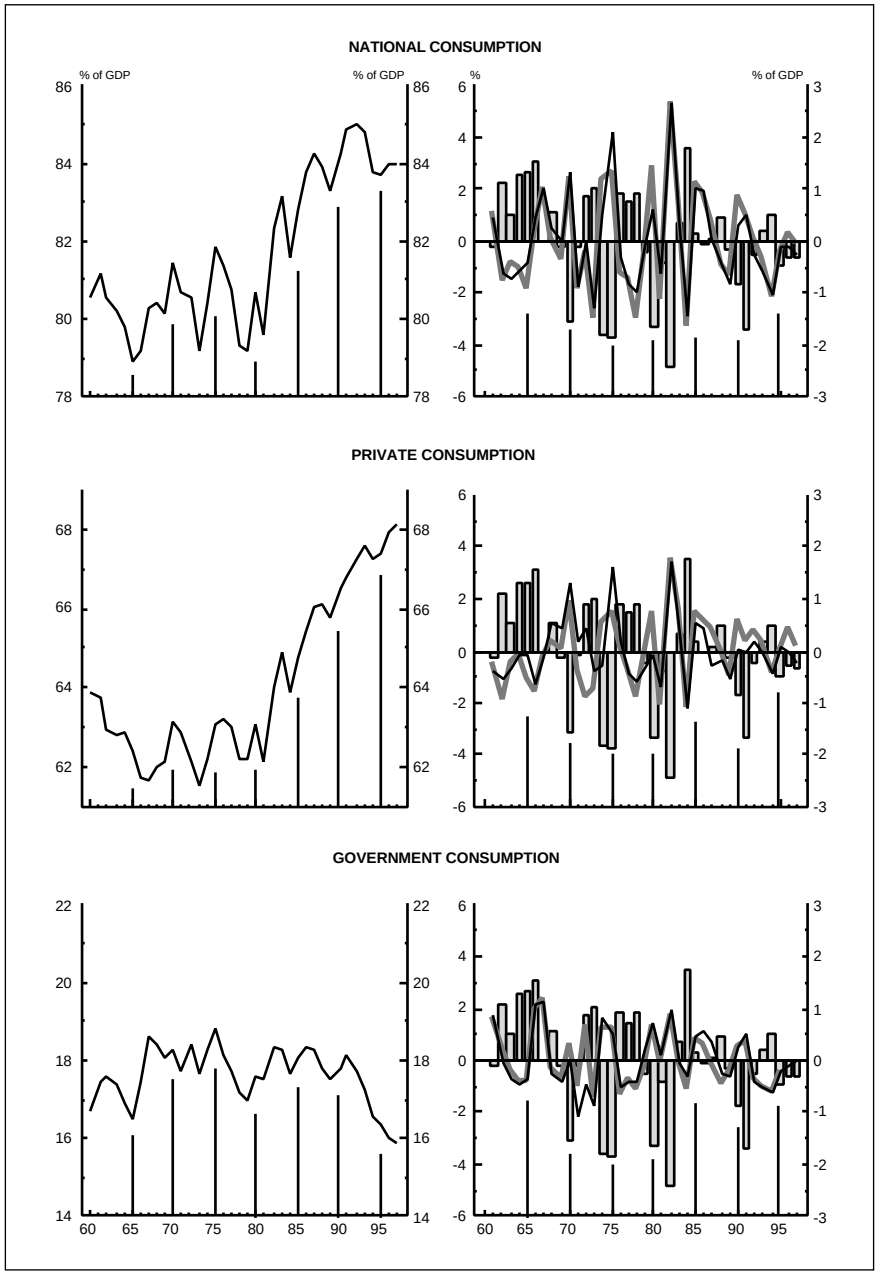
(a) Annual change in variables at constant prices, as percentage of GDP at constant prices.

pro-cyclical fluctuations in gross national capital formation, thanks to the stabilising effects of fiscal policy through the twofold channel of the stabilisation of private-sector disposable income, which helps to stabilise private consumption, and of the direct stabilisation of government consumption expenditure.

The trend behaviour of gross national capital formation and of private and government investment, together with cyclical fluctuations, are presented in Chart III.7. As shown, private investment in both the long and the short run was the determining component in national investment,

CHART III.5

UNITED STATES
NATIONAL CONSUMPTION AND ITS BREAKDOWN BY SECTOR



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

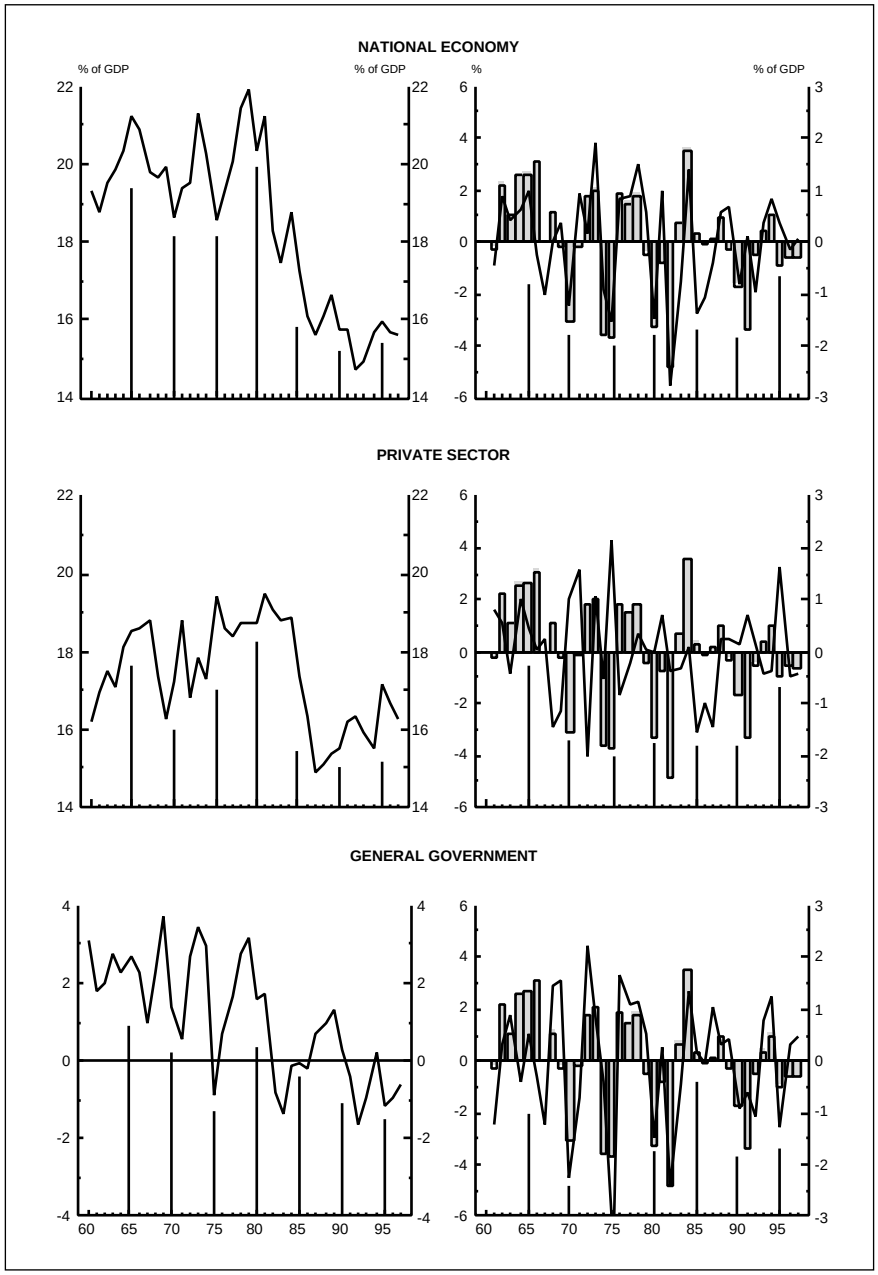
while government investment followed a very stable course in terms of GDP, ranging between 2.3 % and 3.1 %, with a standard deviation of 0.12 percentage points of GDP, compared with 1.39 for private investment. The cyclical sensitivity of government investment, i.e. the sum of gross capital formation and the net acquisition of land of general government, in the period 1968-1995 was –0.02, not different from zero, and its correlation with economic growth was practically nil. The recursive estimation of the coefficient remains stable until 1994, with a small jump to zero in the last year of the period. It cannot be said, therefore, that government investment exerted any stabilising effect on the aggregate expenditure and output of the US economy. Private investment was the most significant destabilising element (and, it might be said, also the driving force) in aggregate demand and output, with an average cyclical sensitivity of 0.56 between 1968 and 1995, a standard deviation of 0.07, and a correlation of 0.68 with growth. No residual autocorrelation problems exist, and the recursive estimation of the coefficient is very stable as of the final years of the seventies. Consequently, it could be said that the cyclical sensitivity of private investment was very high, particularly from the mid-seventies onwards, such that, for each percentage point of deviation from the real economic growth rate with respect to its average, the annual change in the weight of private investment in GDP deviated from its average by somewhat more than half a percentage point in the same direction.

Gross national capital formation, i.e. the sum of the gross capital formation of general government and of the other resident sectors (and also the sum of the investment of both sectors, because net acquisitions of land are cancelled out when aggregated), reflected average cyclical sensitivity of 0.54, with a standard deviation of 0.06, and a correlation of 0.71 with growth. In turn the cyclical sensitivity of gross capital formation at constant prices was very similar to that of national investment expenditure, albeit with a slight first-order residual autocorrelation (0.21), which can be corrected by introducing an AR(1) term in the equation, without affecting the estimated cyclical sensitivity coefficient (0.56). As seen in the upper right-hand part of Chart III.7, there is a very high degree of conformity between the fluctuations in gross national capital formation at constant prices (black line) and at current prices (grey line).

The notable temporary deterioration in the general government saving/investment balance during the recession of 1975 (see Chart III.8) became more permanent in the recession of 1982, when an increase in government consumption combined with a fall in general government gross disposable income as a percentage of GDP. This rise in current expenditure caused persistently negative values in government saving and also generated a lasting borrowing requirement, which has ranged be-

CHART III.6

UNITED STATES
GROSS NATIONAL SAVING AND ITS BREAKDOWN BY SECTOR



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

tween 2 % and 4 % of GDP since then. The saving/investment balance of the other sectors of the American economy also underwent pronounced fluctuations, but only temporarily reaching negative values (1969, 1978-1979, 1987-1988 and 1995). Therefore, the sharp worsening in the national economy's saving/investment balance between 1982 and 1987 is associated with the deterioration in the budget equilibrium in the early years of the decade. Furthermore, its subsequent correction, which restored equilibrium in 1991, did not continue in later years, because the recovery in government saving to positive values was not enough to eliminate its borrowing requirement, nor was it accompanied by an analogous recovery in private saving. Hence the expansion in private investment and gross national capital formation during the recovery of the US economy could not be financed through domestic saving and led to a fresh increase in net external borrowing.

The average cyclical sensitivity of the general government saving/investment balance in the period 1968-1995 is estimated at 0.57, with a standard deviation of 0.07, and its correlation with economic growth is 0.69. The residuals of this regression have a first-order autocorrelation of –0.34, which is corrected by introducing an AR(1) term in the equation, without affecting the estimated cyclical sensitivity coefficient (0.55). The recursive estimation of this coefficient shows that its value was slightly higher (around 0.7) in the seventies, but the RSS test of residuals does not detect problems of instability. In turn, the private-sector saving/investment balance showed a cyclical sensitivity of –71 on average in this period, with a standard deviation of 0.09, and a correlation of 0.70 with growth. The residuals of this regression have a first-order autocorrelation of –0.40, which is corrected with an AR(1) term, without changing the estimated value of this coefficient. The recursive estimation indicates that the cyclical sensitivity of this balance remained stable.

The average saving/investment balance of the national economy in the period 1968-1995, which in accounting terms corresponds to the balance of current transactions with the rest of the world (exports minus imports plus the balance of external income and current transfers), reflects a cyclical sensitivity of –0.15, with a standard deviation of 0.06, and a correlation of 0.16 with growth. The recursive estimation reveals that the coefficient remained relatively stable. As in the case of the private sector, for the entire national economy the greater cyclical sensitivity (in absolute value) of the saving/investment balance in the more recent sub-period is primarily explained by the increase in the cyclical sensitivity of investment, which was greater than that observed in saving. Chart III.8 clearly shows the greater magnitude of the fluctuations in the balance in the second part of the sample.

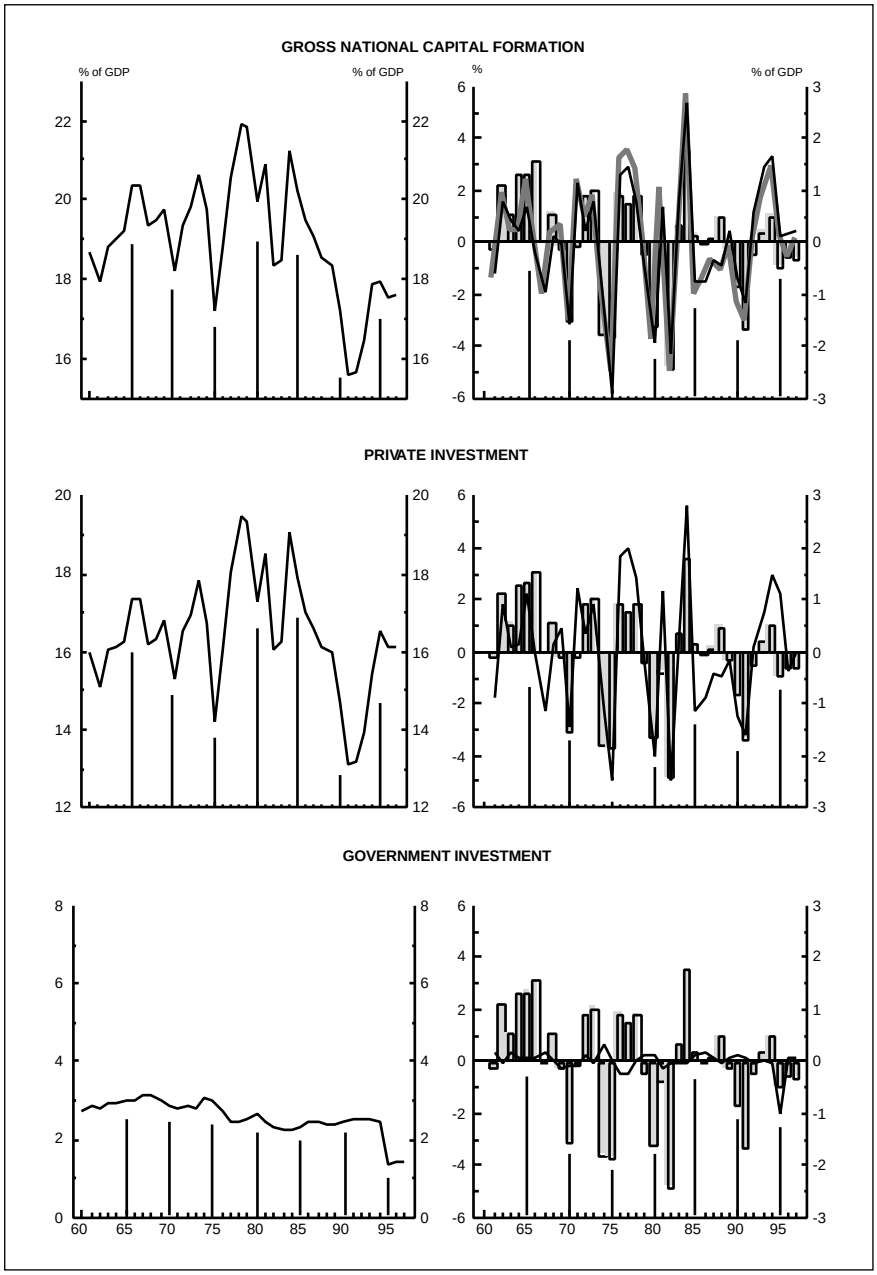
Seen from the external standpoint, the basic components of this balance of transactions with the rest of the world are the export and import flows of goods and services at current prices, because the balance of income and net current transfers with the rest of the world is negligible in the United States and has nil cyclical sensitivity, as shown when examining gross national disposable income. Chart III.9 presents the trend behaviour and cyclical fluctuations of exports and imports of goods and services in the period 1960-1995. The increase in the weight of exports in GDP at current prices was very limited until 1972, while that of imports was more pronounced as of 1965. With the dollar's depreciation, after the fixed exchange-rate system was abandoned, and the rise in oil prices and other raw materials, these relative weights rose significantly, due to the changes in prices more than to the growth in the volume of trade abroad. In the second half of the seventies, imports rose non-stop, except during the recession of 1975, whereas the weight of exports as a percentage of GDP in 1976-1977 declined somewhat, causing a small external imbalance, albeit unprecedented until then, which was absorbed when exports recovered in 1979-1980.

In the first half of the eighties, the recession of 1982 only temporarily halted the advance of imports, while the strength of the dollar and the weakness of economic growth in the rest of the world also affected exports, whose share of GDP slid by three percentage points to the same level as in 1974. This gave rise to a deficit in current transactions with the rest of the world of around 3 % of GDP in 1985, which would reach 3.5 % in 1987, due to the swift recovery in imports. With the dollar's depreciation and the recovery in the European and Japanese economies in the second half of the eighties and the first half of the nineties, American exports recovered and managed to re-absorb almost the entire trade imbalance in 1991. In subsequent years, the weight of both exports and imports in GDP tended to increase rapidly, although imports rose with greater force, causing another significant deficit in current transactions with the rest of the world (around 2 % of GDP in 1994-1996).

Exports of goods and services at current prices showed little cyclical sensitivity in the period 1968-1995 (–0.05), not significantly different from zero, and nil correlation with growth. A high first- and second-order autocorrelation exists between the residuals of this regression, which can be remedied by introducing the AR(1) and AR(2) terms in the equation, whereby the estimated coefficient of cyclical sensitivity is then –0.02. The recursive estimate of this coefficient was somewhat more negative (–0.10) to 1981 than in later years, albeit without ever becoming significantly different from zero. Nor do exports of goods and services at constant prices reflect a well defined cyclical sensitivity, because the value of the coefficient estimated can only be considered different from zero with

CHART III.7

UNITED STATES
GROSS CAPITAL FORMATION AND ITS BREAKDOWN BY SECTOR



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

a margin of error of approximately 67 %, and the coefficient of correlation with the real growth of the American economy is nil. The positive first-order autocorrelation of the residuals (0.56) can be corrected without affecting the nil value of the estimated cyclical sensitivity coefficient. The recursive estimate of the cyclical sensitivity coefficient always ranges between –0.05 and 0, and is never significantly different from zero.

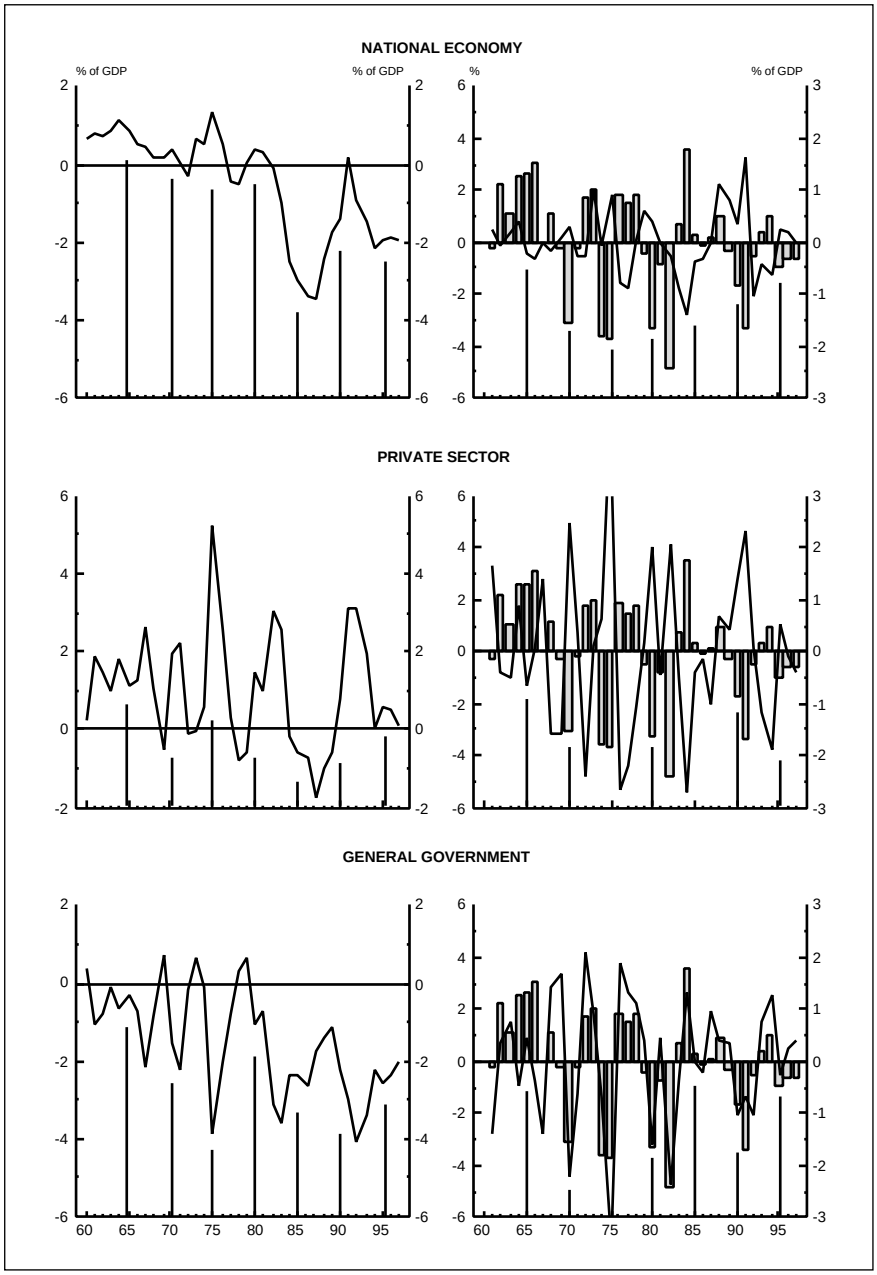
The average cyclical sensitivity of imports of goods and services at current prices was 0.10 in the period 1968-1995, with a standard deviation of 0.05 and a negligible correlation with economic growth. The recursive estimate of the cyclical sensitivity coefficient was in the region of zero until 1981 and then stabilised at 0.1 as of 1982. These results are not very different from those obtained for imports at constant prices, but they are statistically less robust. Imports of goods and services at constant prices had a significant stabilising effect, complementing the cyclical adjustments in national consumption (private and government), by offsetting the pro-cyclical fluctuations in gross capital formation. The cyclical sensitivity of imports is estimated at around 0.15, with a standard deviation of less than 0.04, and a correlation coefficient of 0.38. An appreciable first- (0.46) and second-order (0.40) autocorrelation exists between the residuals of this regression, which is eliminated by introducing AR(1) and AR(2) terms in the equation, whereby the estimated cyclical sensitivity coefficient does not vary and its t-ratio becomes 5.44. The recursive estimates reveal that the estimated coefficient remained stable from the mid-seventies onwards.

In short, the cyclical changes in the composition of aggregate demand in real terms have been characterised in the United States by the pro-cyclical behaviour of national demand, offset by the counter-cyclical changes in net exports, primarily via the adjustment in imports. The roots of the pro-cyclical performance of national demand lie in gross capital formation, whereas both private and government consumption reflected a stabilising influence of fluctuations in investment.

Government saving, with high cyclical sensitivity, was the component that most contributed to aggregate expenditure, through the twofold channel of the stabilisation of gross disposable income of the other sectors of the national economy and of government consumption expenditure. The cyclical sensitivity of general government net lending (+) or net borrowing (–) basically depended on that of government saving, because the stabilising influence of government investment and of net capital transfers was negligible. The stabilisation of private-sector gross disposable income largely occurred through the current transfers of general government – mainly social security benefits – because current revenue made a smaller and less systematic contribution, in that the stabilising effects of income taxes were partly offset by those of the other revenue items. The behaviour of

CHART III.8

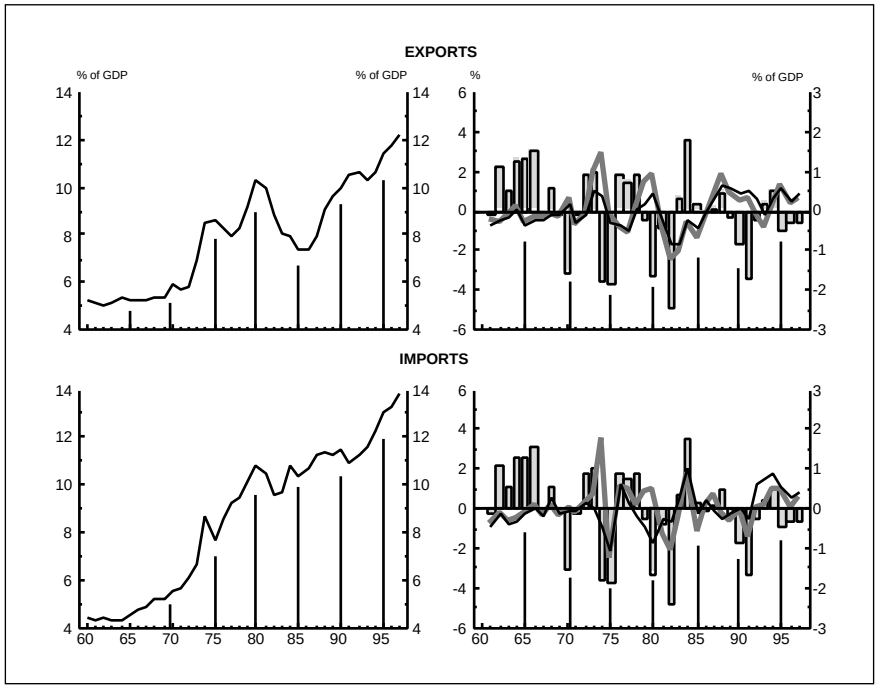
UNITED STATES
SAVING/INVESTMENT BALANCE OF THE NATION AND BY SECTOR



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

CHART III.9

UNITED STATES
EXPORTS AND IMPORTS OF GOODS AND SERVICES



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

private consumers transmitted the stabilisation of their disposable income to the cyclical sensitivity of private consumer spending more or less in proportion to the average weight of private consumption in the gross disposable income of the private sector.

Private investment, with very high cyclical sensitivity, is the variable that most contributed to destabilise or to determine the dynamics of aggregate expenditure, leading to a notable counter-cyclical sensitivity in the private sector's saving/investment balance. Thus net lending is seen to rise sharply in recessions and to fall with equal intensity in expansions.

The cyclical sensitivity of the national saving/investment balance (or balance of current transactions with the rest of the world, if viewed from the perspective of the economy's external equilibrium) therefore depends on the cyclical sensitivity of government saving, on the one hand, and on that of private investment, on the other, while the contributions of government investment and private saving are less significant. From the view-

point of external equilibrium, the cyclical sensitivity of the balance of current transactions with the rest of the world essentially depends on the cyclical sensitivity of imports, with a smaller and less systematic contribution of exports and a practically nil contribution of income and net transfers from abroad.

IV

JAPAN

IV.1. Economic growth and stabilisation policies

When Hayato Ikeda of the Liberal Democratic Party took office as prime minister in 1960, the basic objective he proposed was to double Japan's income in ten years. Even though the opposition in parliament and most economists considered this goal overly ambitious in the belief that the Japanese economy's high growth since the end of the Second World War would tend to slacken, this target was met in only seven years. The trend growth rate of output, which had held at between 8 % and 9 % since 1954, steadily picked up in the last two years of the fifties, reaching more than 10 % by the early sixties, and it remained more or less at this level for ten consecutive years, despite the brief but sharp falls in economic growth in 1962 and 1965. Growth began to decelerate in 1969 and gradually fell to the region of 4 % in the mid-seventies, stabilising around this trend growth rate during the next 17 years until the recession of 1992-1993.

In addition to the reforms introduced by the American military administration and the greater demand for Japanese products spurred by the Korean war in 1950 and 1951, the reasons given in the literature to explain this high rate of economic expansion, which was to last until 1973, include the low prices of raw materials and farm products, on which the Japanese economy is very dependent, the high rate of national saving, which provided the financing for productive investment, and Japan's fiscal and monetary policies, whose priority objective was to promote economic growth (Ito, p. 63). The latter two factors are closely related, and they constitute the distinctive feature of what is known as Japan's "economic miracle". At the same time, the main constraints on economic growth came from the Japanese government's self-imposed restriction of keeping the country's trade balance close to equilibrium, banning in practice cross-border capital flows and foreign investment in particular. The

growth process in Japan sprang from a series of surprising combinations of contradictory elements which, in economies other than Japan's, were a source of inefficiency in the allocation of resources and an obstacle to economic development. In general this mix was produced by: merging elements of government intervention and meticulous market regulations with the flexible application of these same regulations; the centralised coordination of corporate strategies and their independent implementation; agreements to restrict competition in some areas amid ferocious competition in all others; maintaining an economy with relatively little exposure abroad and high productive specialisation, which led to a pre-eminent position in world trade; offering total job security and keeping wages low; imposing few legal controls on the growth of government spending and applying firm budgetary discipline; systematically urging private saving and keeping inflation under control; and having an independent central bank, with a flexible submission to the government's economic objectives.

Among the key institutional features, it should be noted that Japan's tax system is characterised by low fiscal pressure, the predominance of direct taxation over social security contributions and indirect taxes, centralised tax collection and administration, tax regulations developed by consensus, the proliferation of all kinds of tax incentives (on saving, regional development, environmental conservation, technological streamlining, internal corporate financing, etc.), systematic cuts in tax rates to offset the pronounced structural progressivity of rates, and tax evasion and the privileged treatment of non-wage income (Ishi, pp. 12, 39, 42, 44 and 68). Japan's budgetary policy has traditionally rested on three separate budgets: the general government account, special accounts, and the accounts of autonomous institutions. The fiscal year begins on April 1, and the Diet (parliament) approves the budgets around this date. Nonetheless, the budgets may be revised in the course of the year to adapt them to changing economic circumstances and, over the past 30 years, they have been revised at least once each year. In addition to the budgets, the Fiscal Programme of Investments and Loans plays an important role, in that it more or less serves as a capital spending budget – whose funds mainly come from the savings captured by the Postal Savings Bank – which is formally divided up among the three above-mentioned budgets. The special accounts budget is the most sizeable, tripling the funds channeled through the general government budget, and its items range from specific public investment projects to the accounts of the social security system. The internal transfers between the three budgets are numerous and large. [See H.T. Shibata (ed.). *Japan's Public Sector,* Chapters 3 and 4]. As to the structure of the monetary and financial system, it should be borne in mind that, under the influence of the United States, both the Bank of Japan and Germany's Deutscher Länder Bank, the predecessor

of the Bundesbank, were started up after World War II with the same independence of their respective governments as that of the Federal Reserve. Since then the Bank of Japan has followed a policy of setting low interest rates, designed to promote investment and economic growth, and direct credit controls, via a rationing system applied to the major banks, to limit the growth in the money supply when absolutely necessary. These large banks, the flagships of Japan's leading corporate groups, were strongly indebted with the Bank of Japan and, in turn, they made their subsidiary companies strongly dependent on them for credit. This gave the banks a very powerful role in financial intermediation, and the interbank market was the only developed market for funds (Suzuki, 1980).

In the fifties and sixties, when the economy was expanding at very high rates, economic policies gave full priority to growth objectives. Tax policy actively contributed to fuel economic growth: on the supply side – in close collaboration with industrial policies – this took the form of tax incentives and, on the demand side – in combination with monetary policy – this entailed frequent cuts in tax rates. Budgetary policy centred on not enlarging the scale of government expenditure with respect to GDP and on maintaining a balanced budget. By law the government was forbidden to issue debt to finance the deficit of the general account until 1965, although it was allowed to do so to finance investments, which were also financed from the private savings deposited at the Postal Savings Banks. Spending on goods and services for government consumption and on transfers in particular remained stable as a percentage of GDP at very low levels until the early seventies, while government investment was very sizeable. In monetary policy, the Bank of Japan allowed a stable annual increase of 15 % to 20 % in the money supply, financing growth in domestic demand in nominal terms at the same rate, until the restriction imposed by the trade balance required a policy of cooling off demand. The Bank of Japan normally injected or drained liquidity to or from the market on the basis of the interbank rate, enlarging or reducing the major banks' indebtedness with the central bank. These banks passed through to their subsidiary companies the changes in credit conditions, thus greatly influencing investment decisions and aggregate demand (Takenaka, p. 154).

This set of economic policies achieved spectacular results in terms of GDP growth through intense investment efforts, financed from domestic saving, which contributed towards the continued gains in productivity, the specialisation of industrial exports and the absorption of surplus agricultural labour. Among the reasons behind the high national rate of savings, which financed growth, were the low levels of welfare benefits, the high price of housing, fiscal incentives, the low average age of the population, compensation of wage-earners through twice-yearly complementary

bonuses, large but not of a fixed amount, which meant that consumers did not view them as permanent disposable income, and, in sum, the rapid pace of economic growth (Takenaka, pp. 32-37). Investment efforts and productive and technological specialisation were co-ordinated by the powerful Ministry of International Trade and Industry (MITI), through commissions that meshed the interests of private corporate groups and the objectives and restrictions set by the government, offering a framework of agreement in major decisions, which were then carried out in a setting of very harsh competition among companies. One area that has been especially underscored in explaining the success of Japanese firms is the role of the long-run relations between companies and their employees, on the one hand, and the relations between companies and the major banks on which their financing depends, on the other (see M. Aoki, "Toward an Economic Model of the Japanese Firm", *JEL,* 28, num. 1, pp. 1-27, 1990).

Nearly all the fluctuations in the Japanese economy between 1950 and 1970 were derived from balance-of-payments difficulties. Notwithstanding, Japan invariably tended to record a positive current-account balance, with a notable trade surplus partly offset by a greater deficit in services. Japanese imports, largely consisting of oil, raw materials and agricultural products, rose at the same rate as domestic activity, while exports varied in line with income from the rest of the world, and particularly the United States, traditionally the main consumer of Japanese products. Between 1949 and 1971 the exchange rate was fixed at 360 yen per dollar, and capital controls remained strict, ruling out nearly any foreign investment in Japan and the flow of Japanese saving abroad. As a result, the changes in the current-account balance were entirely financed from movements in currency reserves. These movements affected Japan's monetary base, credit expansion and the growth in investment and aggregate demand until the tendency of the current-account balance disequilibrium was corrected. The country's stop-go policy was therefore determined by the economy's external restriction, which in turn was basically influenced by the cyclical position of the US economy.

In the seventies, the structure and workings of the Japanese economy changed substantially, resulting in a reduction in its trend growth rate and also in its cyclical fluctuations. In addition to the effects of Japan's maturing as an industrialised economy, these changes stemmed from a combination of factors: the new exchange-rate regime of a floating yen, which altered the external adjustment mechanisms and the determinants of monetary policy; the development of a welfare state, which fuelled the rise in the weight of social security benefits in GDP, and by the mid-seventies would translate into a significant tendency in government accounts to run a deficit; and, lastly, the oil crises, which forced Japan to embark on a major restructuring of its productive fabric, highly dependent on im-

ported energy. Towards the end of the sixties, the Japanese economy still recorded strong growth rates in demand, and its current-account balance tended towards a surplus, whereas the tendency of US foreign trade towards a deficit became increasingly pronounced, not only in relation to Japan but also to Germany. This was a clear sign that the yen was undervalued at the exchange rate of 360 to the dollar set in 1949. In August 1971 what is known in Japan as the "Nixon shock" occurred, when the dollar's non-convertibility into gold was formally announced. At the end of August national currencies began to float and the yen to appreciate, and at the end of the year the Smithsonian Agreement was reached on the stabilisation of the bilateral exchange rates of the main currencies around new parities, with a certain margin of fluctuation. The yen's exchange rate was set at 308 to the dollar. However, the agreement failed to hold, despite the co-ordinated intervention of central banks on markets in support of exchange-rate stability until late 1972. In February 1973 the dollar was unilaterally devalued, and the other countries decided that the parities agreed in 1971 were no longer sustainable. Thus the yen has floated freely since 1973, albeit with sporadic intervention by the authorities.

The main concern of Japanese economic policy in the transition stage in 1971-1973 towards the new exchange-rate regime of a floating yen was to avert a swift and excessive appreciation of its currency that would jeopardise its trade surplus and set off a recession in the economy. It was then decided to put into practice expansionary monetary and fiscal policies, shifting policy objectives "away from economic growth towards well-being" (see Kurosaka, *Fiscal Policy in Postwar Japan,* Japanese Economic Studies, spring, 1989, p. 19) and accepting the inflationary consequences that these policies implied. The Bank of Japan rapidly increased the money supply in order to keep the yen undervalued, but failed in the effort, and the current-account surplus widened despite the expansion in domestic demand that was aimed at easing the surplus. Meanwhile, domestic inflationary pressures remained subdued as a result of the fall in import prices derived from the yen's appreciation. At the same time, the expansion in government expenditure encouraged by Prime Minister Kakuei Tanaka was based, first, on the "Restructuring Plan for the Japanese Archipelago", which increased government investment and lowered the discount rate to help its financing, and, second, on the revision of social security legislation on pensions and health care, which broadened social benefits to make 1973 "the first year of the era of well-being" (Kurosaka, p. 19). But 1973 was also the year in which inflation surged by five percentage points over the first three quarters, before the drastic rise in oil prices in the fourth quarter. In 1974 this led to the first fall in Japan's real product since World War II and to the "wild inflation" that raised the growth in the GDP deflator to more than 20 % in the

course of the year, fed by explosive wage demands in the spring (Ito, p. 241).

The impact of the oil shocks on the Japanese economy was much greater than in the case of the other main economies due to its lack of energy resources and its specialisation in energy-intensive industries. The result was a slide in productivity and in real income and a necessary reconversion of Japan's productive fabric. Industrial output fell faster and more intensely in Japan (by 20 % between the peak of November 1973 and May 1975) than in other countries, and negative current-account balances were recorded in 1974 and 1975, years when the national investment rate declined by more than five percentage points of GDP. The three main factors in the slowdown in Japan's economic growth as of 1973 were: the oil crisis, the slide in the rate of investment, and weaker technological progress (Ito, p. 71).

The expansionary fiscal policy of the early years of the decade, designed under the assumption that the strong growth in the Japanese economy in the sixties would last another ten years, gave rise to the emergence of a budget deficit in 1975 equal to 2.8 % of GDP, which would later swell to 5.5 % in 1978. Among the causes given for this financial disequilibrium in the public sector were: the slowing in economic growth, contrary to the authorities' expectations; the increase in welfare benefits (Ishi, p. 54); the wage increases of civil servants to counter the effects of inflation; the tax cuts in 1974 (Takenaka, p. 17); and the subsequent error of the authorities in their vain attempts to stimulate, via the budget deficit, an apparently depressed economy, which was actually running at nearly full capacity (Ito, p. 167). According to Noguchi ("Public Finance", in *The Political Economy of Japan,* vol. I: *The Domestic Transformation,* Ed. K. Yamamura and Y. Yasuba, Stanford University Press, 1987, pp. 205-208, quoted in Ito, p. 170), the social security reform of 1973 made the system overly generous. Free health care was introduced for the elderly, and costly medical treatment was subsidised. The public contribution to the medical insurance of self-employed workers went from 50 % to 70 %. Pension payments were also raised. Retirement pensions were increased from 20 % to 43 % of the average wage. Noguchi affirms that these reforms were carried out without first arriving at a reliable estimate of their cost, and that they were the cause of the rise in public spending in the second half of the seventies, because most welfare benefits were indexed to inflation. Noguchi also asserts that the Ministry of Welfare grossly over-estimated the future growth in social security contributions, failing to take into account that the ageing of the population was causing the number of social security beneficiaries to rise while the number of contributors was declining, which would generate sizeable deficits in the future if the structure of contributions and benefits were left as established.

After the expansionary monetary policy implemented by the Bank of Japan in the early part of the seventies, a new policy stance was taken as of 1975, focusing on the control of the money supply as an intermediate target (M2 plus certificates of deposit) of a quarterly nature. Although the Bank of Japan prefers to speak of “forecasts” rather than of “targets”, the truth is, from then onwards, both trend growth and the fluctuations in the money supply have been notably reduced, in line with GDP trends at current prices, apparently without affecting its growth at constant prices. Even Milton Friedman has praised the policy followed by the Bank of Japan, labelling it as monetarist in practice but without boasting of the fact in flamboyant statements (Ito, p. 130). In addition, cross-border capital flows grew appreciably in the seventies. Amid fluctuations in the yen/dollar exchange rate, capital controls were gradually eased with a view to enhancing exchange-rate stability. When the Japanese authorities wanted to counteract the appreciation of the yen, they relaxed certain restrictions on capital outflows and, when seeking to halt a depreciation, they lifted certain obstacles on the inward flow of capital. But, until the enactment of the Law on Trade and Foreign Exchange Controls in December 1980, the rule was that no capital transactions abroad were allowed without express authorisation, whereas the rule thereafter was just the opposite (Ito, p. 321).

In fiscal policy, the government announced a plan in January 1976 designed to eliminate general government borrowing by 1980. However, weaker-than-expected economic growth and the new wave of recession prompted by the second oil crisis made it clear that government revenue would not grow sufficiently to absorb the deficit, unless taxes were raised. An attempt to introduce a value added tax in 1979 was a total failure, and, as a result, the government changed its strategy of fiscal consolidation, basing it now on cuts in public spending (Ishi, p. 54). In January 1979 a new plan was announced for the deficit’s elimination in 1984, based on a general freeze in expenditure, whereby the fiscal drag towards higher brackets in the scale of tax rates on personal and capital income would erase the budget deficit. The imbalance in government accounts was narrowed, but the target set in 1979 was impossible to meet, and thus in August 1983 the time frame for fiscal consolidation was extended to 1990, when the objective was finally met. These delays in the process of fiscal consolidation can only be partly attributed to the recessive impact of the oil price rises as of 1979 and to the weakness of economic growth to 1983. The other factor at play was that the fiscal consolidation strategy based on higher revenue was roundly rejected by society.

The second oil shock had much milder inflationary and recessive effects on the Japanese economy than the first, even though its impact on the energy bill was considerably higher. The basic reasons behind this

weaker impact were the more restrictive monetary policy applied by the Bank of Japan, the slower growth in aggregate demand, the milder inflation expectations (contributing towards wage moderation), and the progress made in energy-saving per unit of GDP. Japan's response to the oil shocks differed from that of the United States and Germany, because it quickly passed higher energy costs through to domestic prices, and therefore the cost of energy in relation to labour, and the cost of labour in relation to capital, rose more in Japan than in the other two countries – in the United States the sixties baby boom generation arrived on the labour market, and in Germany imported oil was partly replaced by domestic coal. Consequently, energy – saving and technological upgrading were greater in Japan, because energy and labour were substituted by capital, thus increasing productivity in the long run and improving the economy's competitiveness (Takenaka, pp. 23-26).

As a result of the second jump in oil prices, the growth rate of the Japanese economy fell slightly, but without sliding into a recession, while inflation continued on a downward course. It also recorded current-account deficits in 1979 and 1980, not only because of the increase in its energy bill but also due to the yen's appreciation between late 1976 and mid-1978. However, as in the previous oil crisis, exports were the driving force in the recovery, spurred by the economy's gains in productivity, which provided for an ongoing fall in export prices, and by the depreciation of the yen that continued until 1985. Nonetheless, the recovery was slower than in the mid-seventies, because the income elasticity of exports was the predominant factor, and the American economy would not recover until 1983.

The initial strategy of fiscal consolidation based on raising revenue encountered strong resistance in Japanese society. The tax system had become increasingly inefficient and inequitable, imposing quite high rates on very narrow tax bases and distorting saving and investment decisions. For some time pressure had been building to reform the tax system in favour of greater equity and neutrality, by eliminating the tax incentives that had previously proliferated in the form of fiscal exemptions, bonuses and privileges. The three main complaints of taxpayers traditionally focused on (Ishi, p. 55): *a)* the fiscal drag towards higher tax rates due to the effects of inflation; *b)* tax evasion of non-wage income, and *c)* the privileges granted to non-wage earners to lower their tax bases. In particular, the lack of a single general tax on income led to discriminatory treatment according to the source of income, and the tax burden on interest earnings, dividends and capital gains had always been very small. These considerations, coupled with the advantages of a tax on consumption to help increase tax revenue in order to finance the future disequilibria that were expected in Japan's social security system, were the rationale behind the introduction of value added tax in 1989.

The characteristics of Japan's fiscal policy in the eighties were, to a large extent, contrary to those of the previous decade. In the seventies, the weight of government spending in GDP rose substantially, the tax system became more complex and discriminatory, and the deficit tended to widen. In the eighties, public spending as a percentage of GDP declined somewhat between 1983 and 1992, tax reforms were introduced to simplify the system and to make it more equitable, and the budget deficit went from 5.5 % of GDP in 1978 to a surplus of 3 % in 1990-1991. This policy of fiscal consolidation meant that general government absorbed a smaller proportion of private saving, and this was reflected in a larger surplus on Japan's balance of payments. On the spending side, the main efforts to curb expenditure were made between 1983 and 1985, but they continued in the second half of the decade and were accompanied by major administrative reforms to reduce the size of the general government sector, privatisations of public-sector firms, and liberalising measures in certain sectors, which helped to heighten competition and the economy's growth potential. On the revenue side, the recovery in economic activity as of 1986 permitted a swifter reduction in the budget shortfall, while at the same time the demand in Japanese society for changes in the tax system was also addressed. The focus of Japan's tax reform in the eighties was the same as in other industrialised countries: a reduction in the progressivity of personal income taxes and corporate tax rates by simplifying the tax structure and widening the tax bases, while shifting part of the burden towards indirect taxation. In the nineties, the general thrust of tax reforms has been to correct the defects in consumer taxation by raising taxes on property assets (such as land) and financial assets, while aligning the tax system more closely to the systems of other countries (Takenaka, p. 135). In April 1991 the parliament approved a land value tax that went into effect in 1992. In 1991 temporary surcharges on corporate tax were also introduced, raising its rate by 2.5 points, and on oil duties, which rose by 50 % to finance Japan's contribution to the Gulf Peace Fund.

A major factor in the development of economic policy in Japan during the eighties was the performance of the US economy. Restrictive monetary policy and the expanding budget deficit in the United States in the early years of the decade led to higher interest rates, an increase in the American economy's net borrowing requirement, massive capital inflows, and a strong appreciation of the dollar. The later recovery in the economy gave strong impetus to Japanese exports to the United States, sustaining the rate of economic activity in Japan. Because of this divergence in the economic cycles and policies of the world's two largest economies, there was a substantial widening in Japan's trade surplus and in the US deficit. To eliminate this disequilibrium, the five major countries reached an agreement in September 1985, at a meeting at the Plaza Hotel in New

York, aimed at correcting the dollar's over-valuation. As a result of this agreement, the yen appreciated by 60 % over the following nine months. Between 1985 and 1987 American monetary policy attempted to collaborate with this objective of eliminating the US trade deficit, and Japanese monetary policy supported the appreciation of the yen. In this period, with low inflation and a high rate of economic growth, monetary expansion repeatedly overshot the Bank of Japan's "forecasts", and the price of assets, property assets in particular, soared. Both these phenomena were also influenced by the process of financial liberalisation and innovation that was under way at the same time.

Nonetheless, the strong appreciation of the yen and the expansion of domestic demand in Japan in the second half of the eighties failed to bring about a balanced current account, which continued to run a surplus of approximately 1.5 % of GDP at its lowest (1990). In real terms, the weight of exports in GDP slid from 11.4 % in 1985 to 10.1 % in 1987, but it then began to rise again and in 1992 reached the same level as its earlier record high. Real imports, by contrast, went from 7.6 % of GDP in 1985 to 10.1 % in 1990, but declined to 9.6 % in 1992 due to the slowdown in economic growth. In nominal terms, the weight of exports in GDP fell from 14.5 % in 1985 to 10.4 % in 1987, but imports also decreased as a percentage of GDP, moving from 11.1 % in 1985 to 7.2 % in 1987, with both changes more or less cancelling each other. Undoubtedly, the fall in the price of oil in 1986 also contributed significantly to the decline in Japan's energy bill and to the lower weight of imports in GDP at current prices: in 1980 half of Japan's imports – measured in yen – were energy products, in 1985 only 43 % and in 1987 this figure was 21 %. But the most striking feature of the behaviour of Japan's foreign trade was still the ongoing strength of its exports, whose prices decreased by nearly 18 % between 1985 and 1987. The most plausible explanation of this tendency was suggested by Krugman ("Long-run Effects of the Strong Dollar", in R. Marston (ed.). *Misalignment of Exchange Rates: Effects on Trade and Industry,* University of Chicago Press, 1988, pp. 277-294), who notes that the period of the dollar's appreciation produced an enormous expansion in the productive capacity, and equally notable gains in productivity, of Japanese industry. This later allowed Japan to absorb more than 40 % of the impact of the yen's appreciation through price reductions, thanks to cost savings and, to a much lesser extent, to a tightening in corporate margins.

Japan undertook major efforts in fiscal consolidation in the eighties. In 1987 the government closed the year's accounts with a surplus for the first time since 1974, and in subsequent years this positive balance steadily rose until reaching approximately 3 % of GDP in 1991. The structural reforms undertaken simultaneously helped to improve the efficiency

of the allocation of resources and the economy's growth potential. When the recession arrived in 1992, Japan enjoyed an appreciable margin for manoeuvre to use fiscal policy for counter-cyclical purposes, which it applied with very notable stabilising effects. In August 1992, after the first signs of weakening in economic activity, the Japanese government adopted expansionary fiscal measures on the spending side, equal to 2.3 percentage points of GDP: 1.2 for government investment, which had been cut during the process of fiscal consolidation in the previous decade; 0.5 for the purchase of land, thus sustaining property prices, which were plummeting after the bursting of the speculative bubble of the second half of the eighties; and the rest for loans to other agents whose collateral had been seriously damaged by the plunge in property values. Meanwhile, monetary policy also became openly more relaxed, and the Bank of Japan lowered its rediscount rate on six occasions between June 1991, when it stood at 6 %, and September 1993, when it was set at 1.5 %. However, real growth declined from nearly 4 % in 1991 to 1 % in 1992, and the Japanese economy entered into recession, with a slight decline in real GDP on average in 1993.

Amid the strongest absolute fall in GDP at constant prices in 20 years, Japanese fiscal policy responded with two additional packages of measures designed to sustain the rate of economic activity. In April and September 1993 further expansion in spending was approved, amounting to nearly 4 % of GDP (of which 2 points were earmarked for government investment, 0.4 for the acquisition of property, and the rest for financing gross capital formation in other sectors). As a result of the recession and of the discretionary measures adopted in 1992 and 1993, the budget recorded a deficit of 1.4 % in terms of GDP in 1993. And, when the Japanese economy began to recover, the rebound in activity was fairly weak, with real GDP growth rates of less than 1 % in 1994 and 1995, far below the levels in previous periods of cyclical upturn -a common feature in most industrialised countries, and apparently little more than a symptom of their increasingly stable behaviour over the course of successive business cycles. Although monetary policy continued to ease in this slow cyclical upturn, with the Bank of Japan's discount rate declining to 1 % by mid-April 1995 and 0.5 % in August of the same year, the yen's appreciation tended to cushion the expansion in exports and the deflation in the price of assets. At the same time, the losses accumulated by the financial system discouraged an increase in lending, which led the government to persist in its application of an expansionary fiscal policy, with further incentives to bolster economic activity in February 1994 and September 1995, amounting to approximately 3 % of GDP in each case. In this way, it combined the earlier expansion in direct government spending and property purchases and financial intermediation as a lender of funds for investment projects in other sectors with a tax cut of 1.2 percentage

points of GDP in February 1994. As a result, the budget deficit rose to 2.4 % of GDP in 1994 and to nearly 3 % in 1995, climbing to a level considered very high by the Japanese authorities from the standpoint of the long-run prospects of public finances, given the forecasts for the ageing of the population.

IV.2. Revenue, expenditure and balance of government accounts

In the sixties, when the growth in the Japanese economy was swifter, the share of government expenditure in GDP rose by barely two percentage points until 1965, and then stabilised in the second half of the decade. The weight of government revenue in GDP remained constant in the early sixties, and thus the balance of government accounts, which had recorded a surplus of roughly 2 % of GDP in 1960, ran a slight deficit in 1966. However, the rise is tax pressure in later years again created a surplus in the budget which lasted until the recession of 1974. By contrast, in the seventies, government expenditure rose strongly, climbing from somewhat less than 20 % of GDP in 1970 to more than 32 % in 1980, with a faster rate of expansion in the first half of the decade (seven percentage points) than in the second (five percentage points), as seen in Chart IV.1. The growth in revenue in this period, though significant, did not suffice to finance a spending increase of this magnitude, and thus the balance of government accounts, positive until 1974, rapidly deteriorated until recording a maximum deficit of 5.5 % of GDP in 1978. The gradual absorption of this budget shortfall, whose origin will be studied later in greater detail, was one of the priorities of Japan's economic policy in the eighties, and it focused on limiting both the growth in expenditure, to keep its weight constant as a percentage of GDP, and the trend growth in revenue (primarily personal income tax), to bring it into equilibrium with expenditure.

The weight of government expenditure in GDP continued to rise until 1983, but the trend growth in revenue, largely induced by inflation and the progressivity of income tax, led to a reduction in the budget deficit to 3.6 % of GDP that year. In 1984-1985, expenditure as a percentage of GDP declined by some two percentage points, remaining almost stable until the recession of 1993, whereas the continued rise in revenue produced a balanced budget in 1987 and then generated a growing surplus, which amounted to 3 % of GDP in 1991. In the first half of the nineties, the slowing in economic growth has been associated with a reversal in the trends in government revenue and spending of the previous decade, causing government accounts to return to a deficit position as of 1993, reaching around 3 % of GDP in 1995.

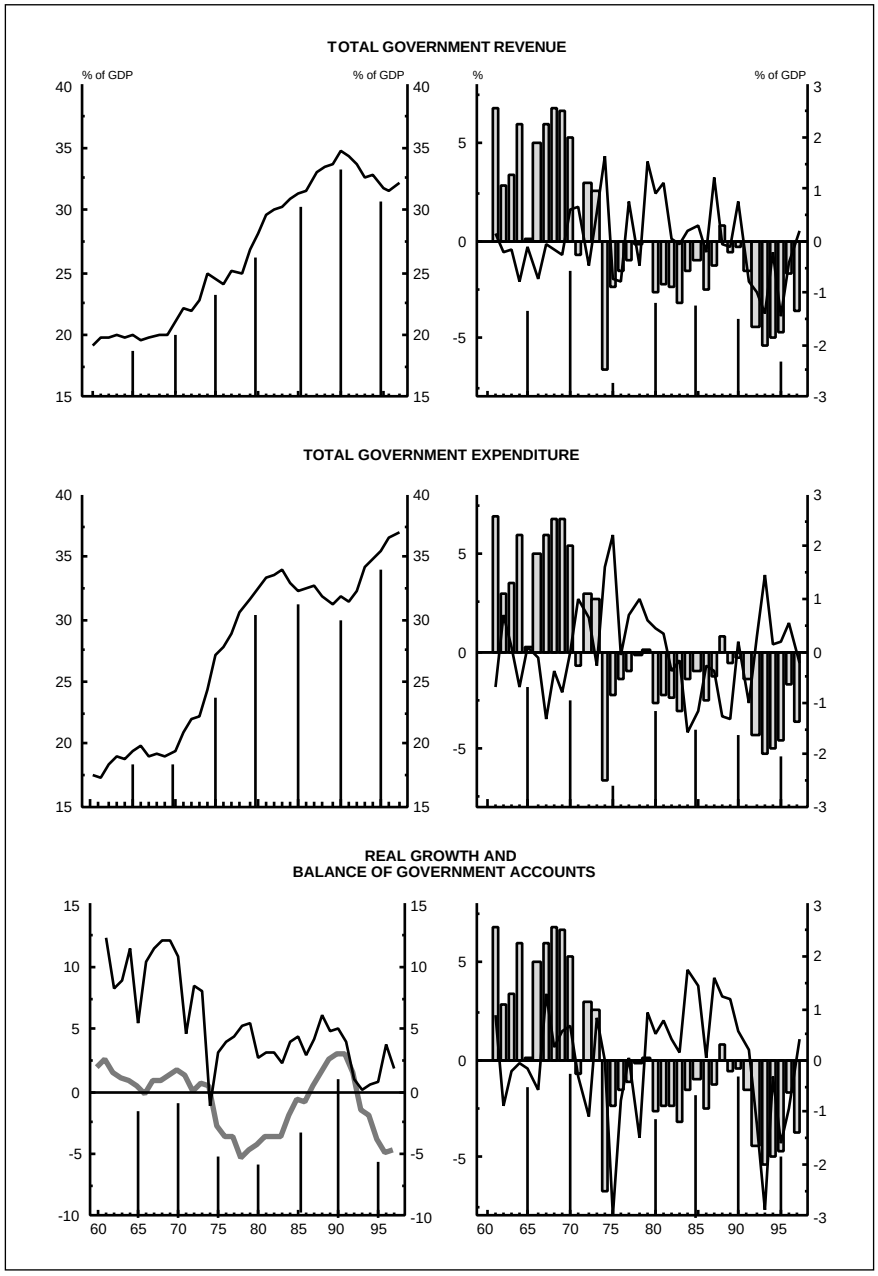
The results of estimating the cyclical sensitivity of total revenue, total expenditure and net lending (+) or net borrowing (–) of general government in the period 1961-1995 are presented in Table IV.1. Total revenue reflects zero cyclical sensitivity and nil correlation with the growth in the economy. However, the recursive estimation of this coefficient indicates that its value did not remain stable over the sample period, but became increasingly more negative towards the end of the seventies, later becoming close to zero, especially in the early nineties. For the period 1961-1978, the estimated coefficient of cyclical sensitivity is –0.06, significantly lower than zero at an 85 % confidence level. For the years 1979-1995, by contrast, the estimated value is 0.30, with a t-ratio of 3.04, and a correlation of 0.34 with economic growth. It can thus be concluded that total government revenue in Japan had a destabilising bias in the decade of the seventies, but gradually increased its cyclical sensitivity, until exerting a notable stabilising influence in recent years.

The cyclical sensitivity of total government expenditure was negative (–0.09) on average in the period 1961-1995, of a stabilising sign at a confidence level of 98 %, although its correlation with economic growth was small (0.13). The positive autocorrelation of this regression's residuals is corrected by introducing AR(1) and MA(3) terms in the equation, while the value of the estimated coefficient of cyclical sensitivity is not greatly affected (–0.12). The recursive estimates of this coefficient reveal the existence of a clear break towards the end of the seventies. For the subperiod 1961-1978, the cyclical sensitivity is very stable at –0.19, with a t-ratio of 5.63, and a correlation of 0.65 with economic growth. For the second half of the sample, the coefficient's value is –0.26, with a t-ratio of 2.74, and a lower correlation (0.29) with growth. Therefore, it can be concluded that total government expenditure has had a relatively modest stabilising influence on the Japanese economy during the past 35 years.

On average, general government net lending (+) or net borrowing (–) in the period 1961-1995 showed cyclical sensitivity of 0.09, substantially greater than zero, with a 10 % margin of error, but with a very low correlation with economic growth. The recursive estimation of the cyclical sensitivity coefficient reflects a profile dominated by the changes in the cyclical sensitivity of revenue, as already noted. For the period 1961-1978, the estimated value is 0.13, significantly greater than zero at a 96 % confidence level, and with 0.2 correlation with economic growth, whereas for the years 1979-1995 a value of 0.56 is estimated, with a standard deviation of 0.1, and a correlation of 0.66 with economic growth. It can be said that Japan's fiscal policy did not exert an important stabilising influence in the sixties and seventies, but that its stabilising effects later became notably stronger, primarily as a result of the higher cyclical sensitivity of government revenue in the nineties.

CHART IV.1

JAPAN
REVENUE, EXPENDITURE AND BALANCE OF GOVERNMENT ACCOUNTS



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

To estimate the cyclical sensitivity of Japanese fiscal policy in more recent years, the Chow test was used, and it indicates that 1979 was the year with the least probability of error, if it is assumed that a structural change occurred in that year. In the analysis below of the stabilising effects of fiscal policy in Japan, the tables present the estimations of the variables' cyclical sensitivity in the period 1979-1995, and the text comments on the most important findings obtained for the sample period (1961-1995) and for the first half of the sample (1961-1978). Table IV.2 shows the estimations of the previous table but referring to the period 1979-1995. The most noteworthy changes are found in the increases in the cyclical sensitivity of total revenue and, to a lesser extent, in that of expenditure (in absolute values). As a result, the estimated cyclical sensitivity of net lending (+) or net borrowing (–) was much higher in the second half of the sample. The three equations have a certain positive autocorrelation in their residuals, which can be remedied without significantly affecting the estimated values of the coefficients of cyclical sensitivity. The recursive estimates of these coefficients confirm that the stabilising effects of fiscal policy became steadily more intense over time, especially via revenue and during the recession of the nineties.

IV.3. Stabilising effects of disposable income

Gross national disposable income – equal to gross domestic product plus the balance of income and net current transfers from abroad – and its breakdown by sector as percentages of GDP followed the trend behaviour and the fluctuations represented in Chart IV.2. National income remained very stable with respect to GDP, given the limited relative importance of the Japanese economy's flows of income and transfers with the rest of the world and, consequently, the trends and fluctuations in the income of general government and the other resident sectors were strictly complementary. The stabilising effects of Japan's fiscal policy on the gross disposable income of the private sector in the years 1979-1995, through its operations in revenue and current transfers, are shown in Table IV.3.

In the period 1961-1978, Japanese fiscal policy had no well defined stabilising effects on private-sector disposable income, mainly due to the untimely discretionary measures adopted on several occasions. Chart IV.2 shows the destabilising impact of the expansionary measures of 1972 and 1978, whose correction in 1973 and 1979 arrived late. Likewise, the fiscal expansion in the recession of 1974 was also delayed, exerting its greatest effects in 1975, when the economy was already on the road to recovery, whereas in the deceleration in growth in 1980 fiscal pol-

TABLE IV.1

JAPAN (1961-1995)
CYCLICAL SENSITIVITY OF GOVERNMENT REVENUE AND EXPENDITURE
Annual change as a percentage of GDP

	Average	*Standard deviation*	*Sensitivity*	*t*	*DW*	R_a^2
Total revenue	0.36	0.76	–0.00	0.19	1.59	0.00
Total expenditure	0.52	0.87	–0.09	2.50	1.15	0.13
Net lending (+) or net borrowing (–)	–0.16	1.12	0.09	1.72	1.43	0.06
MEMORANDUM ITEM:						
Real GDP (rate)	5.57	3.79	—	—	—	—

icy did not sufficiently adjust, but remained geared towards trimming the swollen budget deficit generated in the second half of the seventies. This experience contrasts with the more systematic adjustments in general government gross disposable income to the economy's cyclical situation as of 1981, with notably atypical advances in fiscal consolidation occurring in 1987, when the budget balance was restored, and 1994, when the rise in the budget deficit was checked, despite the persistent weakness in economic growth.

The cyclical sensitivity of the gross disposable income of general government in the years 1961-1978 was 0.06, that of national income was nil, and, as a result, that of the private sector was –0.06, none being significantly different from zero or reflecting any correlation with economic growth. By contrast, during the period 1979-1995, gross disposable income of general government showed average cyclical sensitivity of 0.44, with a standard deviation of 0.07, and a correlation of 0.72 with the growth of the Japanese economy. In other words, for each percentage point of fluctuation in real growth, the general government's income redistribution operations caused the share of its gross disposable income in GDP to fluctuate in the same direction by 0.44 percentage points, so that the weight of the private sector's gross disposable income in GDP fluctuated in the opposite direction by more or less the same magnitude. Consequently, the stabilising effect of fiscal policy on private-sector disposable income was slightly higher than 0.4. The adjusted coefficients of determination (around 0.7) indicated the existence of a close correlation in these variations in the distribution of income between the public and private sectors, whereas the fluctuations in national income as a percentage of GDP did not follow a clear cyclical pattern. The recursive estimations of the cyclical sensitivity coefficients show that their values remained reasonably stable in the period 1979-1995. The negative

TABLE IV.2

JAPAN (1979-1995)
CYCLICAL SENSITIVITY OF GOVERNMENT REVENUE AND EXPENDITURE
Annual change as a percentage of GDP

	Average	*Standard deviation*	*Sensitivity*	*t*	*DW*	R_a^2
Total revenue	0.39	0.87	0.30	3.04	1.52	0.34
Total expenditure	0.30	0.81	–0.26	2.74	1.49	0.29
Net lending (+) or net borrowing (–)	0.10	1.22	0.56	5.60	2.02	0.66
MEMORANDUM ITEM:						
Real GDP (rate)	3.22	1.80	—	—	—	—

autocorrelations of the residuals that appear in the regressions used to estimate the cyclical sensitivities of general government and private-sector gross disposable income are corrected by introducing a MA(1) term, without affecting the estimated values of the coefficients.

In examining the trend behaviour of current revenue – which went from around 20 % of GDP in the sixties to a peak of 35 % in 1990, then declining in more recent years to approximately 33 % – the most salient feature is the relative stability of taxes linked to production and imports, which remained within a range of 6.5 % to 8.5 % of GDP during the entire period, trending downwards until 1975 and then recovering their previous level during the past 20 years (see Chart IV.3). The share of taxes on current income and wealth in GDP rose little in the first half of the sixties, but in the second half grew by nearly two percentage points. Nor was there a sustained increase in income tax pressure in the seventies, because the strong jump in tax takings in 1973-1974, propelled by the inflationary growth in nominal income, was later offset by falls in tax rates, which reduced fiscal pressure to its previous level. This neutralisation of the effects of inflation was not extensive to social security contributions, whose share of GDP trended invariably upwards, or to income taxes between 1978 and 1984, in order to lower the budget deficit, as already noted. Between 1978 and 1991, the weight of current taxes on income and wealth in GDP rose by around five percentage points, although in the three-year period 1992-1994 they declined by some three points as a result of tax reforms and the recession. Social security contributions, after jumping from 4.6 % of GDP in 1973 to 6.4 % in 1975, continued on a mild upward course, raising their share of GDP by a further two percentage points until 1989. This tendency became more pronounced in the nineties and, at present, their relative weight stands at 10.3 % of GDP, albeit

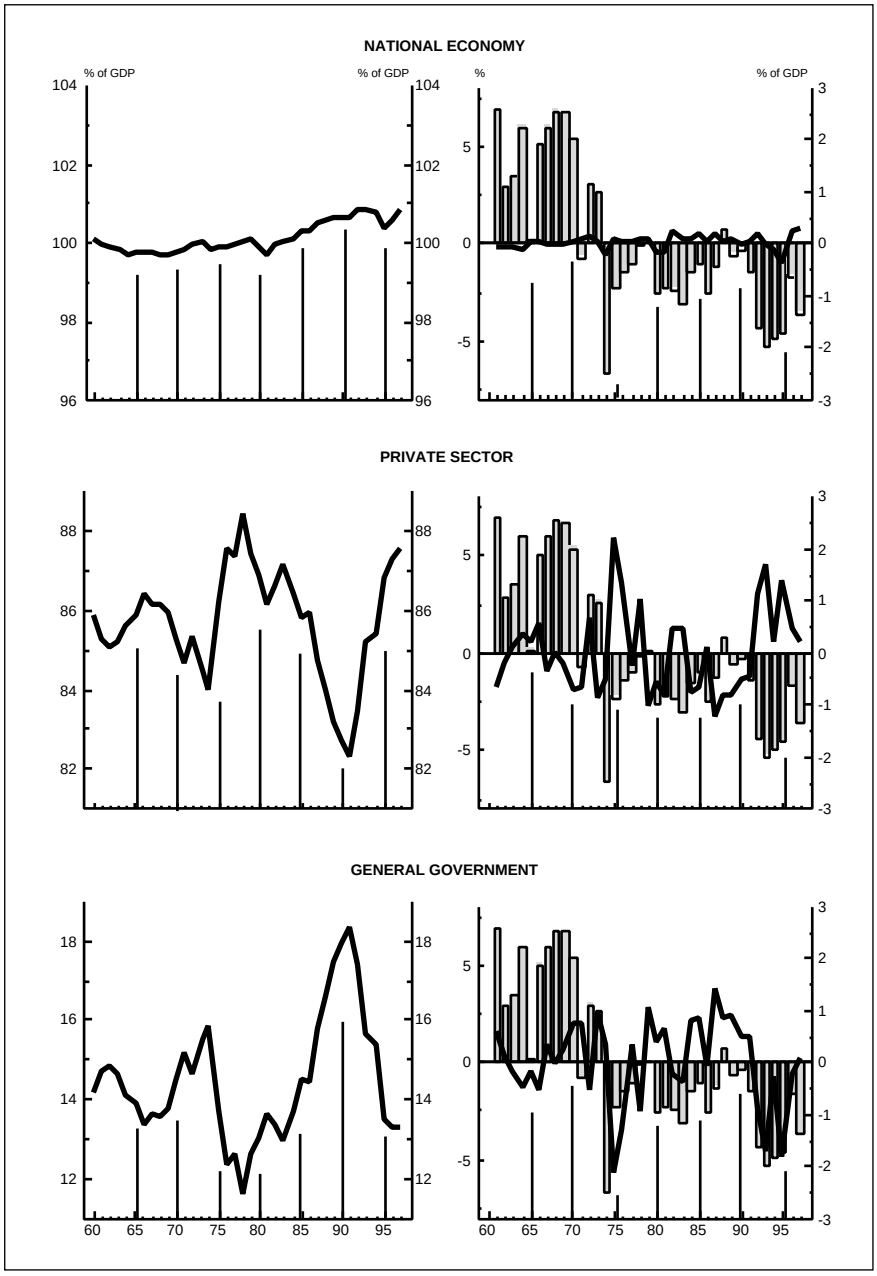
much lower than the average level of the OECD countries. Finally, other current income also tended to rise in terms of GDP, moving from 1.1 % in 1960 to roughly 4 % in the nineties.

As to the components of current revenue, income taxes were the determining factor in its stabilising effects. The average cyclical sensitivity of these taxes in the years 1979-1995 is estimated at 0.28, with a standard deviation of 0.06, and a correlation of 0.56 with economic growth. The recursive estimation shows that this cyclical sensitivity coefficient did not remain constant, but was nearly equal to zero until 1991, only rising in more recent years. If this coefficient is estimated for the period 1979-1991, its value is not significantly different from zero and its correlation with growth is nil. Moreover, the stability tests run on the cyclical sensitivity coefficient also suggest that there was a structural change in 1991. When the residuals' autocorrelation is corrected in the estimation for the period 1979-1995, the value of the estimated cyclical sensitivity coefficient does not prove significantly different from zero. It can therefore be concluded that the increase in the stabilising effects of Japan's fiscal policy on private-sector disposable income in recent years is associated with the strong downward adjustment of current taxes on income and wealth as percentages of GDP in this stage of slow economic growth, as seen in Chart IV.3. The other current income items show no well defined cyclical sensitivity, and thus their stabilising effects are negligible.

Unlike the case of other countries, Japan's current transfers reflect less cyclical sensitivity than current income for the period 1979-1995. The cyclical sensitivity of total current transfers is –0.15, with a t-ratio of 2, and their correlation with growth is fairly insignificant (0.16). For the years 1961-1978, cyclical sensitivity is estimated at –0.12, with a t-ratio of 6.4 and an adjusted coefficient of determination of 0.70. Among current transfers, welfare benefits had the clearest stabilising effect. Their cyclical sensitivity in the more recent period was –0.12, with a standard deviation of 0.04 and an adjusted coefficient of determination of 0.31. Between 1961 and 1978, the cyclical sensitivity of welfare benefits was somewhat lower in absolute value (–0.09, with a t-ratio of 5.42), but was more closely linked to the fluctuations in economic growth (coefficient of determination of 0.63). The other transfers showed no well defined cyclical sensitivity, according to the estimations in Table IV.3, except in the case of actual interest payments, whose coefficient is biased by the strong positive autocorrelation of the residuals. If remedied by introducing an AR(1) term in the equation, the estimated value of the coefficient is –0.04, with a t-ratio of 2.20, and a correlation of 0.79 with economic growth.

As to the trend behaviour of transfers, it should be underscored that their increase explains more than 80 % of the expansion in government expenditure in Japan during the period analysed. In 1973 total general

JAPAN
GROSS NATIONAL DISPOSABLE INCOME AND ITS BREAKDOWN BY SECTOR



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

TABLE IV.3

JAPAN (1979-1995)
STABILISING EFFECTS OF DISPOSABLE INCOME
Annual change as a percentage of GDP

	Average	*Standard deviation*	*Sensitivity*	*t*	*DW*	R_a^2
GENERAL GOVERNMENT:						
Current revenue	**0.39**	**0.87**	**0.30**	**3.04**	**1.52**	**0.34**
Taxes on production and imports	0.07	0.28	0.02	0.57	2.55	0.00
Income taxes	0.01	0.66	0.28	4.65	1.33	0.56
Social security contributions	0.21	0.26	–0.03	0.70	2.25	0.00
Other revenue	0.10	0.34	0.02	0.40	2.48	0.00
Current transfers	**0.28**	**0.57**	**–0.15**	**2.01**	**1.53**	**0.16**
Welfare benefits	0.22	0.36	–0.12	2.88	2.34	0.31
Subsidies	–0.04	0.13	–0.00	0.21	2.53	0.00
Interest payments	0.10	0.23	–0.02	0.70	0.22	0.00
Other transfers	0.00	0.00	–0.00	0.60	1.43	0.00
Gross disposable income	**0.11**	**0.93**	**0.44**	**6.56**	**2.65**	**0.72**
OTHER SECTORS:						
Gross disposable income	**–0.09**	**0.88**	**–0.41**	**6.09**	**2.52**	**0.69**
NATIONAL ECONOMY:						
Gross disposable income	**0.02**	**0.16**	**0.03**	**1.47**	**1.50**	**0.07**
MEMORANDUM ITEM:						
Real GDP (rate)	3.22	1.80	—	—	—	—

government current transfer payments represented 7.3 % of GDP, compared with 5 % in the early sixties, but in the ensuing ten years this weight rose by one percentage point per year. Since 1983 it has tended to stabilise, fluctuating between 16.2 % and 17.6 %. The growth in transfers between 1973 and 1983 stemmed from the expansion in social security benefits (some seven percentage points of GDP) at a much more vigorous rate than the growth in general government current revenue, giving rise to a substantial budget deficit and a rapid accumulation of government debt. In turn, as in the other countries, the interest burden generated by this debt rekindled the growth in current transfers (more than three percentage points of GDP between 1974 and 1984), making it difficult to reduce the budget deficit. From 1983 until the strong slowdown in economic growth in 1992, social security benefits remained practically stable as a percentage of GDP, recording small fluctuations, as seen in Chart IV.4, some of which – as that of 1990-1991 – had a destabilising impact.

As of 1992, the weight of welfare benefits in GDP again tended to rise as a result of the sluggishness in economic activity, although this tendency was curbed in 1994 and 1995 due to the need to restrain the growth in the budget deficit.

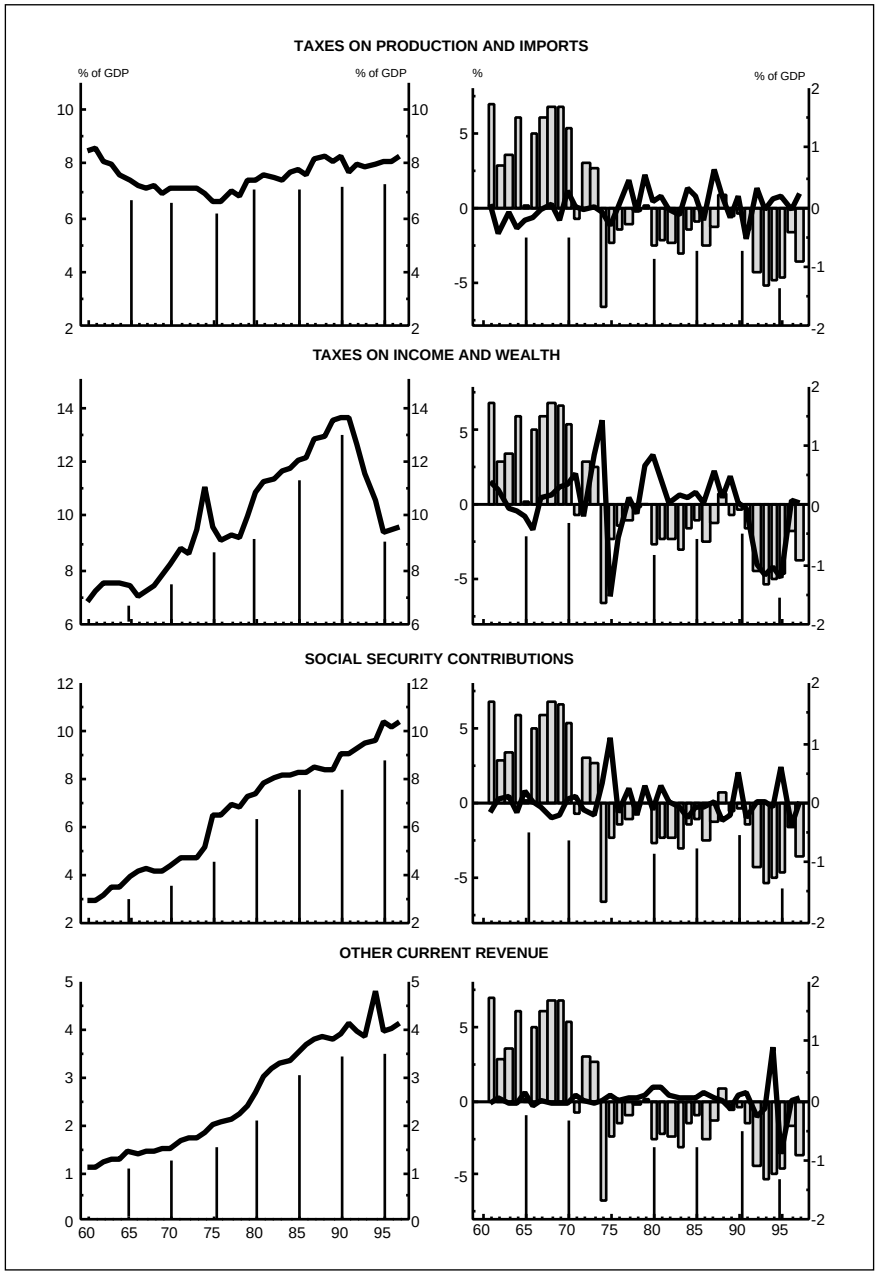
IV.4. Stabilising effects of nominal expenditure and real demand

The stabilising effects of fiscal policy on private-sector gross disposable income are reflected in private consumption spending decisions, as shown in Table IV.4. The average propensity to private consumption in Japan remained close to 0.6 as of 1979 and, given that the stabilising effect of disposable income was –0.41, the cyclical sensitivity of private consumption should be around –0.24, a value (in absolute terms) somewhat higher than that estimated for the average of the period 1979-1995 (–0.21), but not significantly different, because the associated standard deviation is 0.09. Moreover, if the cyclical sensitivity of real consumption is estimated (at constant prices), the result is similar (–0.18), with a t-ratio of 2.25 and a correlation of 0.2 with economic growth. Nonetheless, it should be pointed out that the greater stabilising effects of fiscal policy on private-sector gross disposable income on average in the second part of the sample did not translate into an increase in the cyclical sensitivity of private consumption. For the period 1961-1978, the cyclical sensitivity of real private consumption is estimated at –0.14, significantly different from zero, with a correlation of 0.46 with economic growth, whereas the cyclical sensitivity of expenditure on private consumption (at current prices) for the same period is –0.24, with a t-ratio of 4.57 and an adjusted coefficient of determination of 0.54.

Both private and government consumption remained stable in relation to GDP during the first half of the sixties, then underwent a severe contraction – greater in private than in government consumption – in the second half of the decade, and recovered – more in government than in private consumption – between 1970 and 1975, as seen in Chart IV.5. This chart also reflects, in the right-hand column, the fluctuations in these variables (grey line at current prices, black line at constant prices) and in economic growth. The higher values in the cyclical sensitivity of private consumption and its greater correlation with economic growth until 1978 is primarily explained by the contraction-expansion cycle in private consumption as a percentage of GDP between 1965 and 1975.

Government consumption over the past 25 years has reflected a very stable cyclical sensitivity, estimated at around –0.07 at current prices and slightly less than –0.10 at constant prices. The fit at constant prices is somewhat better, and there are no autocorrelation problems in the resid-

JAPAN
CURRENT REVENUE OF GENERAL GOVERNMENT



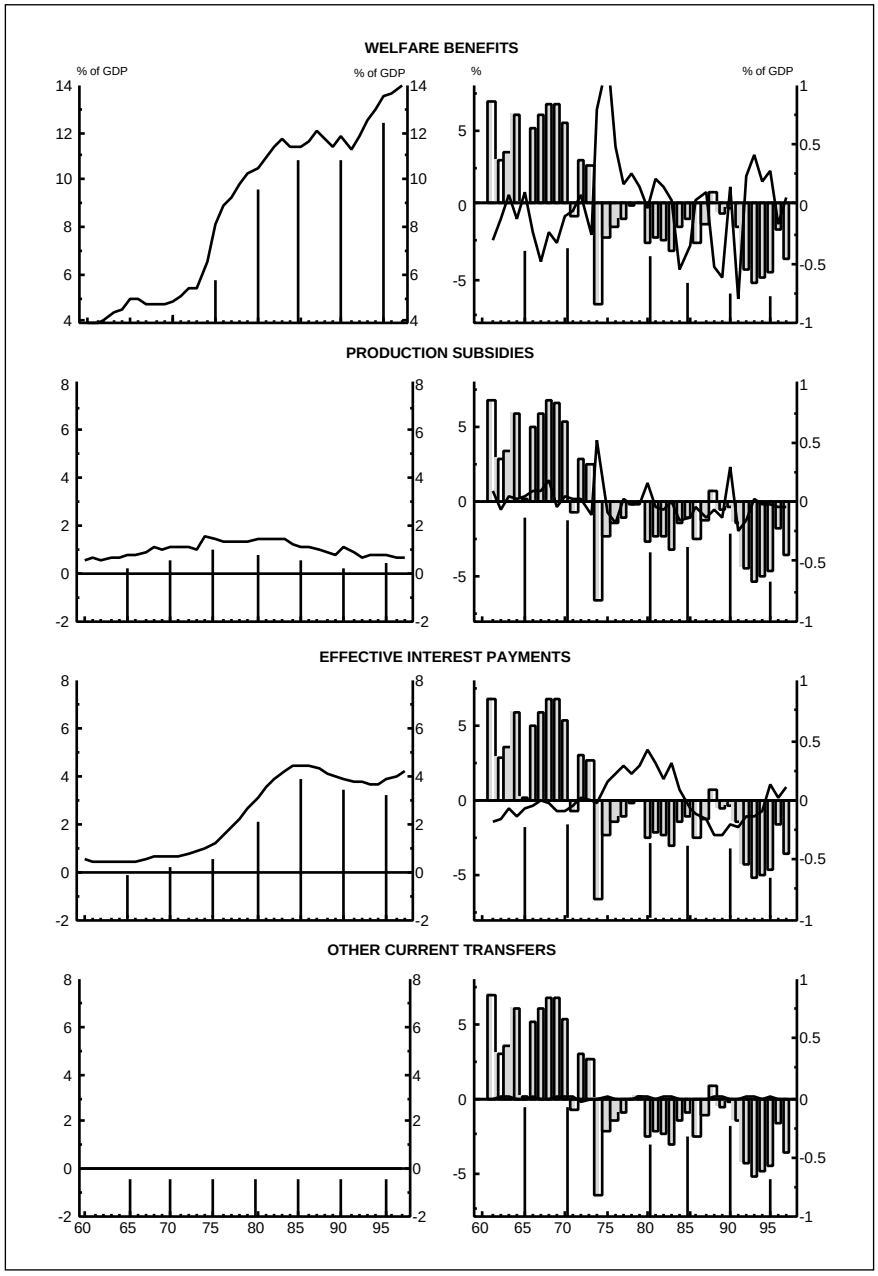
Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

uals. If the autocorrelation of the residuals is corrected in the estimation of the coefficient of cyclical sensitivity of government consumption at current prices by introducing a MA(1) term in the equation, the estimated value for the period 1979-1995 does not change. It can therefore be concluded that government consumption in Japan has exerted a stabilising effect in respect of nominal expenditure and real demand – and output – of a magnitude proportional to its weight in GDP and systematically linked to the cyclical position of the economy. National consumption has had a stabilising effect of –0.28, estimated at both current and constant prices, although the magnitude of this effect was somewhat greater (in absolute values) in the first half of the sample due to the behaviour of private consumption.

These stabilising effects of fiscal policy, both through income redistribution operations and general government demand for current goods and services, are also found in the changes in national saving and its breakdown by sector, presented in Chart IV.6. The national saving rate remained very high and stable in the first half of the sixties, at around 34 %. Between 1965 and 1975, it ran a full cycle, pushed upwards by the national savings ratio until the year 1970 and then falling during the next five years, initially due to the decline in private saving and later as a result of the additional impact of a strong slide in government saving in the 1974-1975 recession. The downward tendency in private saving as a percentage of GDP continued to 1990, whereas government saving began to recover as of 1978, following the same profile as gross disposable income and the net lending (+) or net borrowing (–) of general government. This has been the predominant pattern in national saving over the past ten years, with its recovery reaching a high of nearly 35 % of GDP in 1991 and then declining in the years of recession to somewhat more than 30 % in the mid-nineties. By contrast, private saving has tended to recover since 1990, and it now stands at approximately the same level as in the early sixties.

The cyclical sensitivity of national saving and of its private and public components has been decreasing since the mid-sixties, as shown in the recursive estimations which begin in the year 1961, and the most notable jump in the coefficients' value occurred in the year 1974. However, if the two periods in which the sample is divided are considered separately, the values estimated for the cyclical sensitivity of national saving are nearly identical (0.31), although this stability is due to the offsetting changes in the cyclical sensitivities of its private and public components. In the first part of the sample, the fluctuations in national savings as percentages of GDP were influenced more by private than by public saving, whereas the contrary is true in the second part of the sample.

JAPAN
CURRENT TRANSFERS OF GENERAL GOVERNMENT



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

The cyclical sensitivity of gross private-sector saving was significantly different from zero and higher (0.18) than that of government saving in the years 1961-1978. By contrast, in the period 1979-1995, its estimated cyclical sensitivity was negative (–0.2), negligibly different from zero, and had very little correlation (0.18) with economic growth. This negative sign of the cyclical sensitivity of private saving implies a dependence of the private sector on the saving of other sectors (government or external sectors) to finance the fluctuations in private investment, which, as we shall later see, has a high and positive cyclical sensitivity in Japan and also in the other countries. As the stabilising effects of fiscal policy on the fluctuations in private-sector disposable income gradually increased, and at the same time the adjustments in private consumption failed to exert any greater stabilising effects on aggregate expenditure, the cyclical sensitivity of private saving diminished, with its sign eventually changing.

Conversely, the gross saving of general government reflects stronger average cyclical sensitivity in the second period of the sample in relation to the first, to the same extent as the sector's gross disposable income, because the cyclical sensitivity of government consumption remained stable. From 1961 to 1978, the average cyclical sensitivity of government saving was low (0.13), although significantly higher than zero, and its correlation with economic growth was 0.28. By contrast, in the period 1979-1995, its estimated cyclical sensitivity was 0.52, remaining quite stable, and its correlation with economic growth was 0.76. The negative autocorrelation of the residuals of this regression is corrected by introducing a MA(1) term in the equation, which does not affect the value of the coefficient of cyclical sensitivity. It may be said, therefore, that the increase in the stabilising effects of fiscal policy on private-sector disposable income did not translate into a greater stabilising effect of private consumption on national expenditure, but instead produced a slide in the cyclical sensitivity of private saving, whose financial independence declined.

Gross national capital formation and private and public investment in Japan have followed the trend behaviour and cyclical fluctuations as percentages of GDP shown in Chart IV.7. This chart indicates that private investment was the dominant force in the trends and changes in the short run in gross national capital formation, because government investment remained quite stable as a percentage of GDP, fluctuating at around 5 % until 1991, and only in more recent years has it risen strongly in order to combat the recession. By contrast, the weight of private investment, which had fluctuated greatly at around 30 % of GDP in the sixties, declined by some 12 percentage points between 1970 and 1983, moving to the region of 23 % in the mid-eighties. It has now moved down to approximately 20 %, after running the course of the cyclical upturn that began in 1986 and touched bottom in 1995.

CHART IV.4

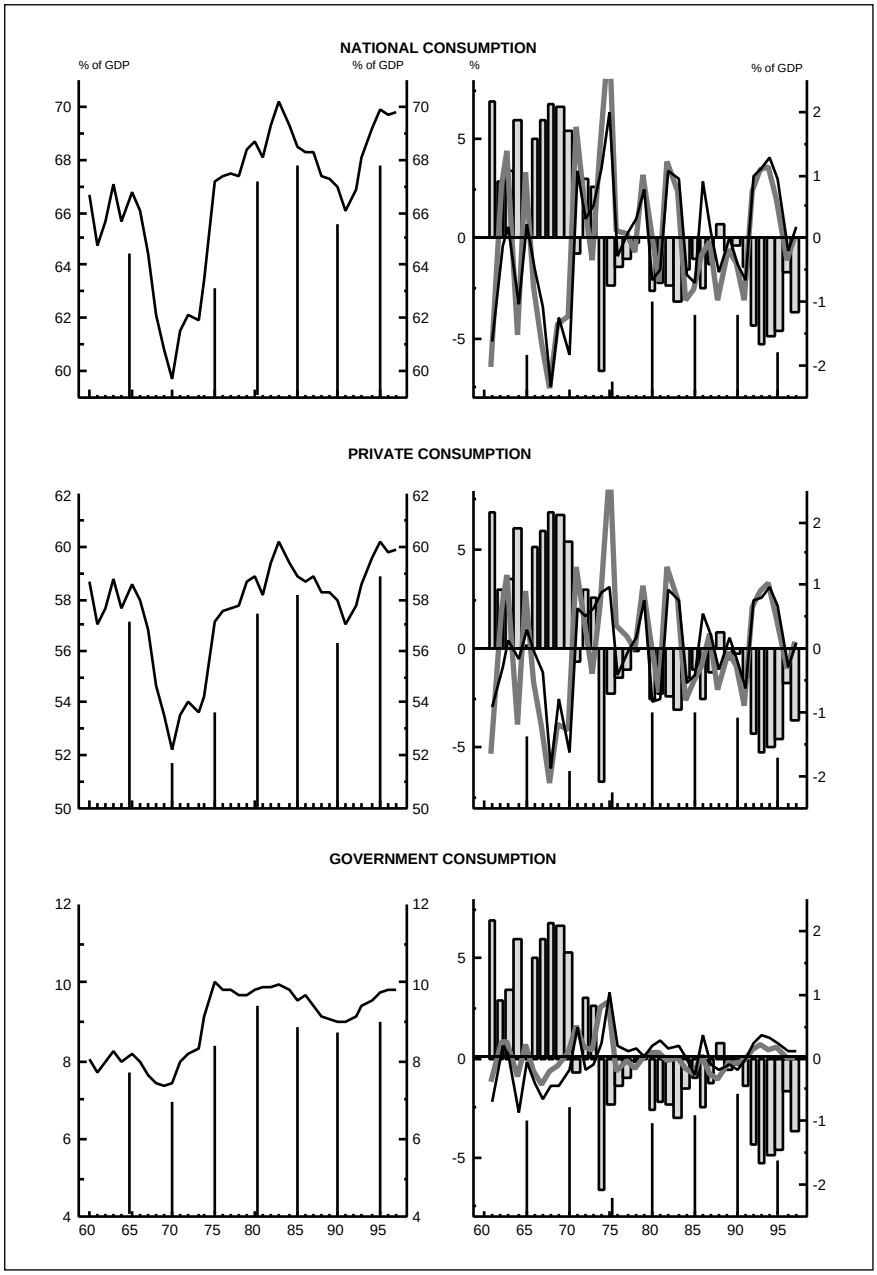
JAPAN (1979-1995)
CHANGES IN THE BREAKDOWN OF NOMINAL EXPENDITURE AND REAL DEMAND
Annual change as a percentage of GDP

	Average	*Standard deviation*	*Sensitivity*	*t*	*DW*	R_a^2
National consumption	**0.15**	**0.81**	**–0.28**	**3.04**	**1.70**	**0.34**
Private	0.15	0.72	–0.21	2.35	1.89	0.22
Government	0.01	0.16	–0.07	5.36	1.18	0.63
Gross national saving	**–0.13**	**0.83**	**0.31**	**3.51**	**1.36**	**0.41**
Private	–0.24	0.78	–0.20	2.10	2.00	0.18
Government	0.11	0.05	0.52	7.14	2.63	0.76
National investment	**–0.14**	**1.07**	**0.47**	**5.00**	**0.66**	**0.60**
Private	–0.28	1.23	0.63	9.75	1.66	0.85
Government	0.15	0.59	–0.16	2.26	1.45	0.20
National saving/investment balance (1 + 2 = 3 – 4 + 5)	**0.01**	**1.04**	**–0.16**	**1.12**	**0.96**	**0.02**
Private	0.05	1.79	–0.84	6.18	2.02	0.70
Government	–0.04	1.52	0.68	5.26	2.06	0.63
Exports	–0.10	1.10	0.06	0.35	1.27	0.00
Imports	–0.08	1.56	0.25	1.15	1.08	0.02
Income and transfers	0.02	0.16	0.03	1.47	1.50	0.07
REAL DEMAND (a):						
Private consumption	–0.02	0.65	–0.18	2.25	2.02	0.20
Government consumption	–0.07	0.21	–0.09	5.70	2.21	0.66
Gross capital formation	0.01	0.91	0.37	4.17	0.61	0.51
Exports	0.23	0.53	–0.06	0.74	1.57	0.00
Imports	0.15	0.67	0.04	0.41	1.12	0.00
MEMORANDUM ITEM:						
Real GDP (rate)	3.22	1.80	—	—	—	—

(a) Annual change in variables at constant prices, as a percentage of GDP at constant prices.

The recursive estimates of the cyclical sensitivities of gross national capital formation and private and government investment since 1961 indicate, as in the case of national saving and its sectoral composition, diminishing values, with major drops in 1974 and later tending to stabilise. For the period 1979-1995, the average estimated value of the cyclical sensitivity of gross national capital formation at current prices is 0.47, with a correlation of 0.6 with economic growth. As indicated by the Durbin-Watson statistic, the residuals of this regression have a significant first-order autocorrelation (0.54), which can be remedied by introducing a MA(1) term in the equation without changing the value of the coefficient of cycli-

JAPAN
NATIONAL CONSUMPTION AND ITS BREAKDOWN BY SECTOR



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

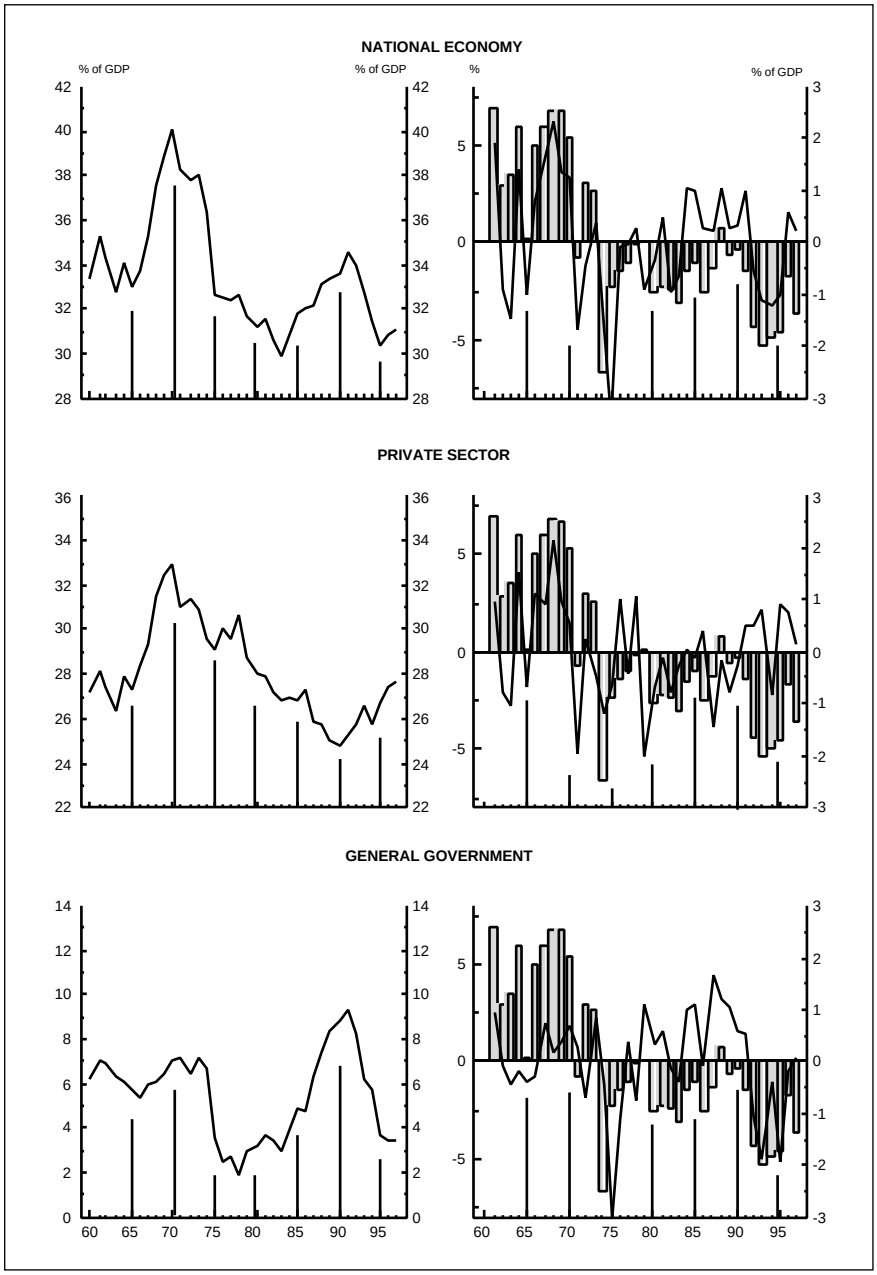
cal sensitivity. If the cyclical sensitivity of gross national capital formation at constant prices is estimated (black line in the upper right-hand part of Chart IV.7), the value obtained is 0.37, with a correlation of 0.5 with economic growth and an autocorrelation of the residuals similar to the above instance. In introducing a MA(1) term in the equation, the value of the estimated coefficient does not change.

Private investment is the destabilising (or revitalising) variable in aggregate demand. For the period 1979-1995, its estimated average cyclical sensitivity is 0.63, with a standard deviation of 0.07, and a very high correlation (0.85) with economic growth. In turn, government investment had no stabilising effects on aggregate demand until 1991. Even though the cyclical sensitivity coefficient estimated for the average of the years 1979-1995 is –0.16, the value of this coefficient until 1991 is positive and stable, although not significantly different from zero. Therefore, government investment appears to have had considerable stabilising effects as of 1991 only, due to the decision of the Japanese authorities to increase these expenses to attenuate the recession.

Chart IV.8 shows the trends and fluctuations in the national saving-investment balance (which is also equal to the balance of current transactions with the rest of the world), as well as its breakdown by sector. The recursive estimates for the period 1961-1995 reveal that the cyclical sensitivity of the national saving-investment balance did not remain constant, but was more negative in the sixties and then gradually moved closer to zero over time, with a significant jump in 1974, due to the fact that the decline in the cyclical sensitivity of gross national capital formation was greater than that of national saving. The cyclical sensitivity of national saving in the period 1979-1995 was less than that of national investment, and therefore the saving-investment balance reflected a negative cyclical sensitivity (–0.16) during those years, not significantly different from zero, and with nil correlation with economic growth. The residual autocorrelation in this regression is remedied by introducing a MA(1) term in the equation, without affecting the estimation of cyclical sensitivity. Seen from the standpoint of the composition of aggregate expenditure and demand, the negative value of the cyclical sensitivity of the national saving-investment balance indicates – with the variables always measured as percentages of GDP – that the counter-cyclical adjustments in private and government consumption were not enough to accommodate the pro-cyclical fluctuations in gross capital formation, and thus national demand recorded pro-cyclical behaviour that was counteracted by the counter-cyclical adjustments in net external demand (exports minus imports).

The saving-investment balance of the private sector shows similar characteristics to those discussed for the saving-investment balance of the national economy. For the years 1979-1995 its estimated cyclical

JAPAN
GROSS NATIONAL SAVING AND ITS BREAKDOWN BY SECTOR



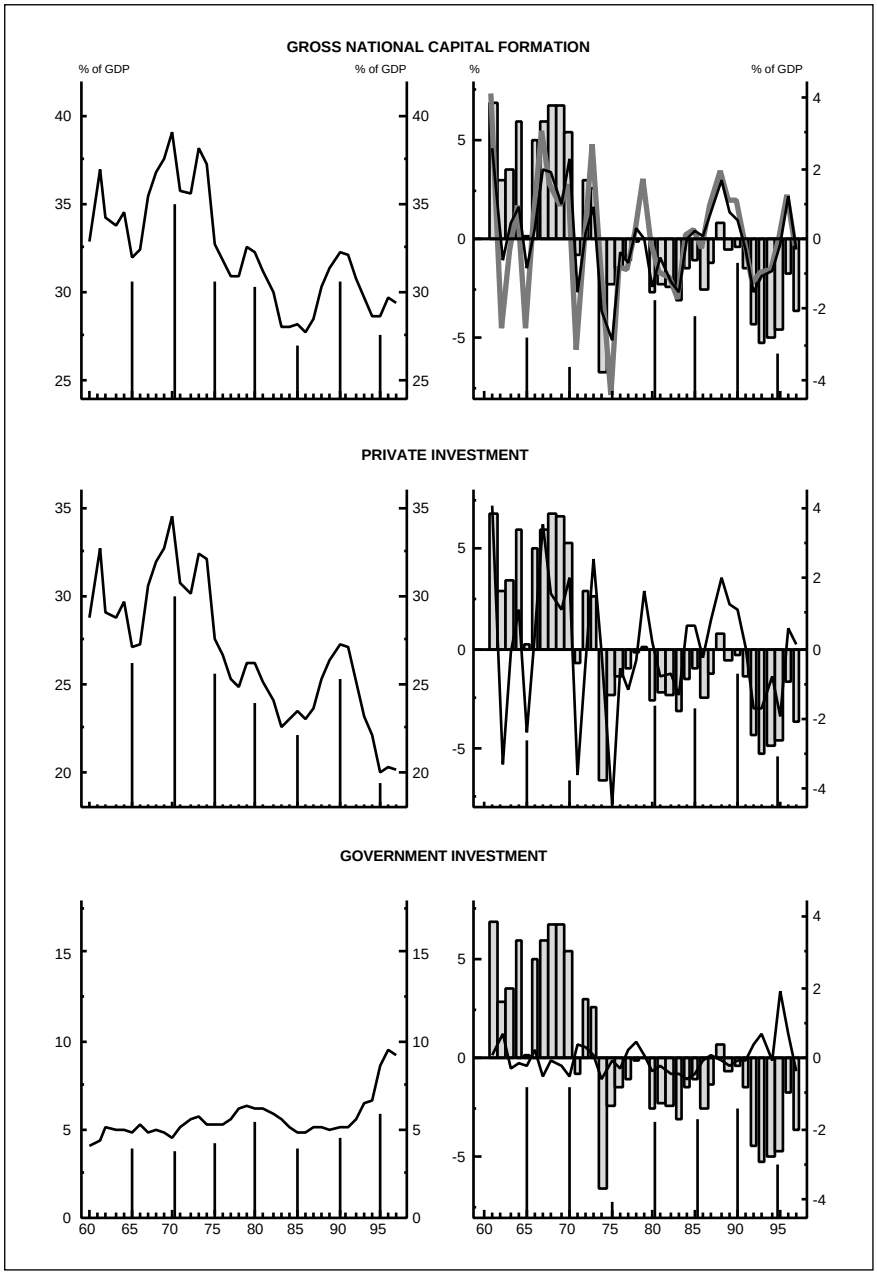
Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

sensitivity was –0.84, and it had a high correlation (0.7) with economic growth. The general government saving-investment balance reflects more stable cyclical sensitivity over the entire sample. For the second period, its average value is estimated at 0.68, with a t-ratio of 5.26, and a correlation of 0.63 with growth. However, this value did not remain stable, and instead the recursive estimations indicate the existence of a break as of 1992, because until then the estimated cyclical sensitivity was less than 0.4. It can be concluded, therefore, that the stabilising effects of fiscal policy in Japan were much weaker until the year 1991 and that in the past four years they have increased, because of the greater cyclical sensitivity of current income and wealth taxes and government capital spending during this downturn. In the lower right-hand part of Chart IV.8, the destabilising effects of Japan's expansionary fiscal policy are again seen in the years 1972, 1975 and 1978, as well as the sudden change of course in 1979, which kept a restrictive sign in the early eighties despite the weakness in economic growth in this period.

From the viewpoint of the Japanese economy's relations abroad, the disequilibrium between saving and investment represents the balance of current transactions with the rest of the world (exports minus imports at current prices, plus income and net current transfers received). The foreign trade flows between the Japanese economy and the rest of the world reflect no well defined cyclical sensitivity either at current prices or at constant prices, and their adjustments were non-systematic, as indicated in the negligible correlation with economic growth. The cyclical sensitivity of exports at current prices in the period 1979-1995 is estimated at 0.08, not significantly different from zero, and its correlation with economic growth is nil, whereas for imports at current prices the value estimated is 0.27 – which can only be considered greater than zero at a confidence level of 26 % – and the correlation with economic growth is also negligible. As to income and net current transfers from abroad, cyclical sensitivity is estimated at 0.02, not different from zero, with nil correlation with economic growth. In sum, flows of income and expenditure with the rest of the world have not had a systematic relationship with the growth in the Japanese economy, but instead the imbalances between national saving and investment have been compensated at times by exports – when the external economic setting was propitious – and at times by imports. Chart IV.9 presents the series on exports and imports in the usual way. The right-hand column shows the greater scale of the fluctuations at current prices (grey line) than at constant prices (black line), due to the changes in the deflators of these variables with respect to the GDP deflator.

Nor did exports or imports at constant prices show any well defined cyclical sensitivity in the period 1979-1995 on average, with nil correlation with economic growth, according to the estimates in Table IV.4. There-

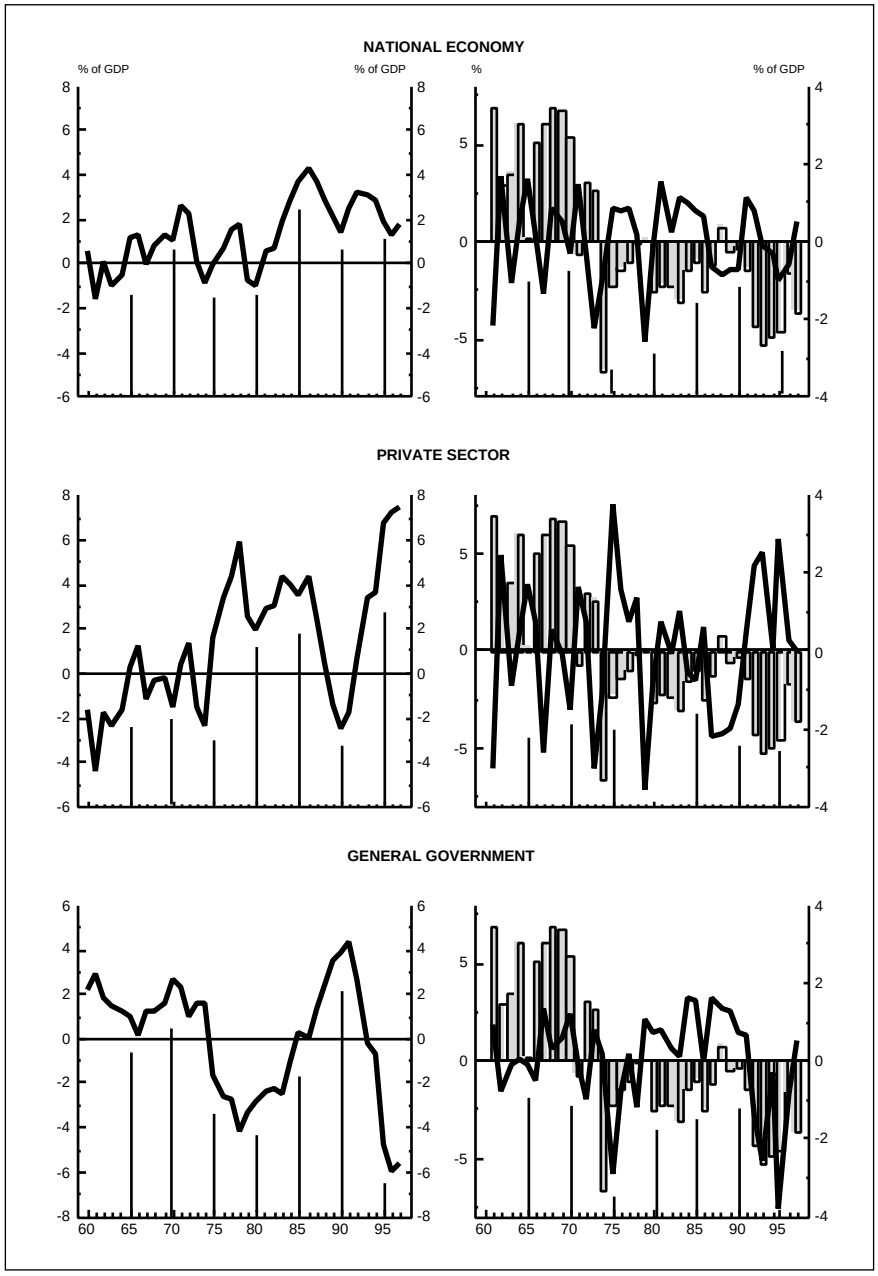
JAPAN
GROSS CAPITAL FORMATION AND ITS BREAKDOWN BY SECTOR



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

CHART IV.8

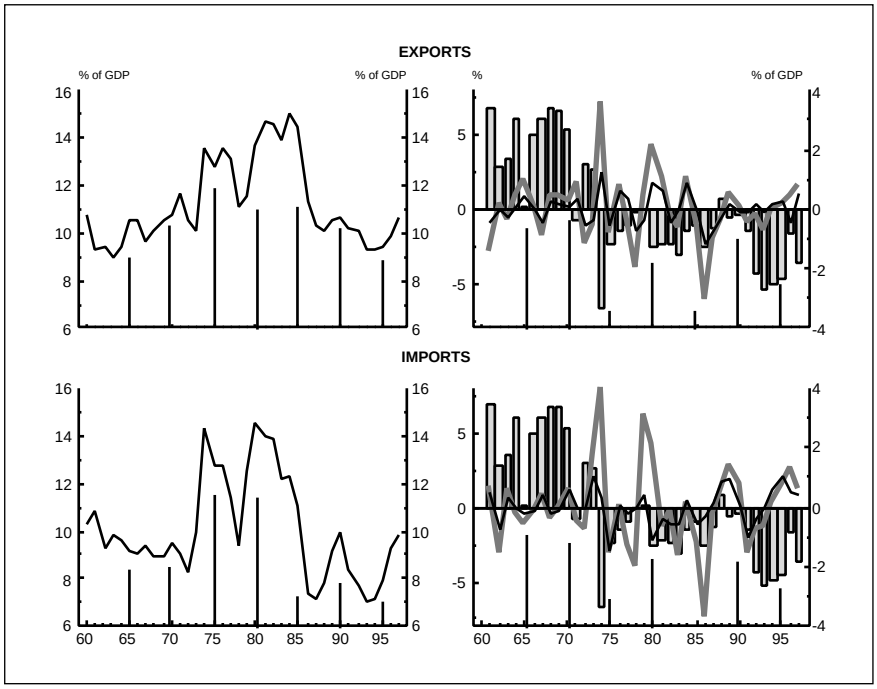
JAPAN
SAVING/INVESTMENT BALANCE OF THE NATION AND BY SECTOR



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

CHART IV.9

JAPAN
EXPORTS AND IMPORTS OF GOODS AND SERVICES



Source: European Commission. Figures for 1996 and 1997 are forecasts estimated by the Commission's Technical Services.

fore, the cyclical changes in the composition of real demand, characterised by an increase in the relative weight of gross fixed capital formation in upturns and a decrease in recessions, were mainly compensated, rather unsystematically, by adjustments in the opposite direction in real private – and, to a lesser extent, public – consumption, with the rest of the adjustment coming from the stabilising fluctuations – not significantly different from zero, on average – of real exports and imports, which were totally non-systematic in the years 1979-1995 as revealed in their nil correlation with economic growth. Nonetheless, these findings on the cyclical sensitivity of exports and imports must be viewed taking into account the structural changes in the stabilising effects of fiscal policy previously analysed and which also affected the cyclical adjustments of the composition of real demand and the external counterpart of the imbalance between national saving and investment. In this respect, three periods can be distinguished.

Between 1961 and 1978, fiscal policy had no stabilising effects on private-sector gross disposable income, because the destabilising influence

of current revenue offset almost entirely the effects of a contrary sign of current transfers. In this stage, the cyclical sensitivity of nominal and real consumption was well defined and contributed to smooth the fluctuations in gross capital formation, without offsetting them altogether, as reflected in the disequilibria between national saving and investment. In the period 1979-1991, fiscal policy had a more stabilising effect on private-sector gross disposable income, due to the change of sign in the cyclical sensitivity of current revenue, but private consumption continued to contribute, to more or less the same extent as before, towards the stabilisation of nominal expenditure and aggregate demand, and thus the cyclical sensitivity of private saving waned appreciably. In more recent years, the stabilising effects of fiscal policy on private-sector gross disposable income have increased, because the cyclical sensitivity of current income and wealth taxes has risen. By contrast, the pro-cyclical sensitivity of gross capital formation has declined somewhat, largely because government investment has become a stabilising influence. Both changes have helped to stabilise aggregate demand and to smooth the disequilibrium between national saving and investment during these years of recession.