

**ADDRESS DELIVERED BY MR. VÍTOR MANUEL RIBEIRO CONSTÂNCIO  
ON THE OCCASION HE TOOK OFFICE AS GOVERNOR  
OF THE BANCO DE PORTUGAL, ON 23 FEBRUARY 2000**

*Mr. Prime Minister*

*Mr. Minister of Finance and Economy*

*Messrs. Secretaries of State*

*Ladies and Gentlemen*

In my name and in the name of my colleagues of the Board of Directors I would like to thank the Government for the confidence that it has placed on the team that is now going to govern the Banco de Portugal. In my personal case, I am returning to an institution where I have spent approximately 15 years of my professional life, holding different posts and different responsibilities. This is not my first day at the Banco de Portugal. I performed the functions of Governor in 1985-86 and therefore I think that it will be interesting to make a brief comparison between the country at that time and the country we live in today, when I take over again as Governor. At that time, Portugal had just finished its second IMF stabilisation programme, growth had been negative in 1984 (-1.9%) and inflation had reached 28.9%, following a 20% devaluation of the escudo effective exchange rate. 1985 was a more favourable year, with growth attaining 2.8%, but inflation still remaining at 20%; the unemployment rate stood at 8.7% and the public sector borrowing requirement at 10.5% of GDP. Lending rates stood at around 27% and deposit rates at 25%. The situation of the banking system was a source of major concern, since profitability was affected by the high implicit tax charged by the State under the form of a deficit financing below market rates, and the solvency situation was precarious with an 11% ratio of non-performing loans (NPL) to total credit and own funds plus provisions accounting approximately for only 80% of NPL.

It is not surprising thus that my speech when I took office in 1985 was focused on the introduction of the required reforms of State financing, of the money and foreign exchange market, the restructuring of the banking sector and the preparation for the switch to indirect methods of monetary control so that the former credit ceilings could be abandoned. During my term of office, I was able to carry out part of the programme announced. The issue of Treasury bills through tender procedures conducted by the Banco de Portugal, allowed for the creation of the first market-determined interest rates and laid the grounds for a true money market, a pre-requisite for the reform of the monetary control method according to market mechanisms. Interest rates started to be liberalised. The interbank money market was modernised and there was a shift from the physical presence in market sessions to continuous sessions throughout the day over the phone. Administered exchange rates were abandoned and a spot market with a daily fixing was set up. Rules were defined to accommodate in a profitable way, within the context of the credit ceilings system, the new private banks that in the meantime had been authorised.

In sum, the first steps were taken towards financial liberalisation, which was a pre-requisite for accession to the EEC. It was an interesting period during which the Banco de Portugal was able to contribute again to the stabilisation and mod-

ernisation of the Portuguese financial system and economy.

In the meantime, the accession to the European Union galvanised and transformed the country much beyond our perception. Today, we have a developed country, which is a member of European Monetary Union, with full macroeconomic stability and conditions for development in the future. Harmonised inflation stands at 1.7%, virtually identical to the European average, the unemployment rate at 4.2%, the budget deficit at 1.9% and average interest rates are around 6%. This evolution was accompanied by deep structural transformations and a sizable rise in the standards of living of the population, whose real disposable income has increased by 50% since 1985.

Among the transformations made, I would like to highlight the changes introduced in the banking system, which today is globally profitable, modern, concentrated, well capitalised and expanding. In September, non-performing loans accounted for only 2.4% of total credit and own funds plus provisions were 600% higher. In the meantime in this period, banks placed in their own Pension Funds around 1,300 billion escudos to ensure their pension liabilities towards bank employees. On the other hand, increases in productivity gave rise to a 230% real growth of the system's total assets, while the number of employees remained virtually unchanged. Although the system has a few problematic areas, the institutions' modernisation capacity — through the introduction of state-of-the-art technologies in order to support the development achieved by the country — should be praised.

The voices that doubted our capacity to profit favourably from the participation in the European Union were silenced. Portugal surprised even the most optimistic, by the way how it was able to achieve nominal convergence with its European partners and participate in the euro. The Banco de Portugal played a brilliant role in this process and in this perspective I am much honoured to congratulate Professor António de Sousa and his team on the way they conducted the Bank in the fulfilment of its functions.

I would not like the positive view that I have transmitted of the evolution of the country in this

period to be misinterpreted. I am clearly conscious of the vulnerabilities and shortcomings that still characterise Portugal — weak education indicators, insufficient infrastructures, low technological content of many productions, income inequalities. Besides, although the participation in the euro creates great opportunities, it entails some risks and imposes new competitive requirements. This is perhaps the reason why lately some doubts have been expressed on the sustainability of the recent development pattern of the Portuguese economy. Three aspects are usually highlighted:

- First, growth is excessively based on the buoyancy of domestic demand, particularly of consumption, giving rise to a high degree of indebtedness of households, mirrored in the external indebtedness of the banking system to accommodate the difference between the growth of credit and deposits.
- There are also concerns about the balance of payments and a somewhat confusing idea that it may disturb economic growth.
- Finally, there are concerns about the recent performance of exports and foreign direct investment.

As to the first point, I would like to stress that despite some projections to the contrary, Portugal did not experience an overheating of the economy: growth is moderately higher than that of the EU, inflation is similar to the European average and there is no inflation in the assets market. It is true, that the indebtedness of households reached almost 80% of the disposable income, but with the reduction over the past years in interest rates, the burden with interest charges recorded only a small rise. In fact, that percentage is rather lower than the one recorded in several countries when they experienced crises related to the real estate market. It is obvious that credit to households could not go on growing as in the past few years and prospects of some rise in interest rates led to some deceleration towards the end of 1999. Banks in turn have to become more selective and above all keep their clients better informed about possible future increases in interest rates. The situation of their own accounts will also depend thereon as well as their capacity to go on borrowing normally from other

euro area banks. Indeed, the strong external indebtedness of the banking system is normal between regions belonging to the same monetary area, where the transfer of savings is ensured without foreign exchange risks. The only limits relate to the credit capacity of each of the banking institutions, as assessed by the market and its kindred foreign institutions. This is not therefore a macroeconomic problem.

As a matter of fact this has to do with some confusion on the meaning of an external current account of a region belonging to a monetary union as is currently the case of Portugal. Without a currency of our own, we shall never again face the same balance of payments problems of the past. There is no macroeconomic monetary problem and no restrictive measures need to be taken for balance of payments reasons. No one analyses the macro size of the external account of the Mississippi or of any other region belonging to a large monetary union. This does not mean that there are no external restrictions on the economy. These restrictions result solely from the mere aggregation of the indebtedness capacity of the various economic agents. The limit depends on the indebtedness capacity of internal agents (including banks) vis-à-vis the Euroland financial system. If and when indebtedness is considered too high, expenditure will have to be cut, because the financial system will place limits on credit. The equilibrium will be spontaneously re-established, through a mechanism of expenditure deflation, and no adjustment policies will have to be implemented. The aftermath of a strong indebtedness situation may have recessive consequences, but it is not a balance of payments problem. The most adequate comparison would be with the new paradigm that sees the external current account as the result of an intertemporal optimisation of the consumption profile of an economy that faces a perfect capital market.

For a country with its own currency and assuming that the currency is traditionally weak, in general, the limits become apparent earlier on, since foreign currency is required to pay for imports, either by resorting to reserves or to credit, and both have obviously limits. That is, the suspicion that a country in this situation may have an external payments macroeconomic problem, due

to the fact that it is running out of reserves, leads external restrictions to be felt before the economic indebtedness capacity of economic agents dries up. Thus in these cases, good companies or good investment projects may be subject to financing ceilings if the country does not hold foreign currencies. This does not happen in the context of a region that traditionally trades with other regions of the same monetary area. If the economy is growing soundly, with good projects, it means that its output is competitive and that there are no "balance of payments" problems hindering the process of real convergence with developed Europe. If, on the contrary, the economy is growing less than that of our trading partners and imports are far higher than exports, showing lack of competitiveness, the external current account can be indicative of problems, albeit not being itself a problem. It is therefore an indicator that has to be analysed together with other competitiveness indicators.

I have already mentioned that all this does not imply the absence of external restrictions on the economy, but from the point of view of public policies what matters is the existence of limits to the growth of domestic expenditure, due to the inflationary pressures that it can generate and to the consequences that it may have on the competitiveness of Portuguese output. Moreover, an excessive pressure of demand on the assets market (e.g. real estate prices) can give rise to a future crisis with recessive consequences.

The currently existing inflation differential is however of a reduced size and of a still recent nature. In addition, in the context of monetary union and of a process of real convergence of development levels, inflation in Portugal will be higher than the European average, but this will not necessarily imply a loss of competitiveness vis-à-vis the remaining Member States. The justification for this performance is peaceful and is related to the so-called Balassa-Samuelson effect.

This does not imply however that we may ignore the risks of inflation. Experience from the past decades in developed countries and the evolution of economic theory demonstrate that in addition to being counterproductive to try to fine-tune the conjuncture, the inflation rate is neutral in relation to the equilibrium path of output. That is, we do not have higher growth and more

employment by creating more inflation and a decentralised market economy operates better in a low inflation environment. Therefore, if private expenditure remains unabated and growth continues to be strong, the State will have to maintain fiscal tightening. Considering that no interest rate cuts are foreseen in the short run, this implies that public consumer expenditure cannot go on increasing at the same pace of the past years. The degree of financial rigour will therefore increase and no illusions should be entertained, to quote the philosopher, because "an illusion is often worse than a mistake". I therefore congratulate the new Stability Programme presented by the Minister of Finance for being quite positive, committing the government to a rigorous path regarding the containment of the current expenditure of the State, by resuming the consolidation of Portuguese Public Finance. I can assure you, Minister, that the Banco de Portugal will support and stimulate this effort, including by being critical if required, so that the Programme can be fulfilled.

The latter point I mentioned regarding the Portuguese economic situation seems to be potentially more worrying. I am referring to the recent behaviour of exports and foreign investment. The loss, albeit negligible, of market quota over the past two years in the countries of destination of our exports, and the deceleration of direct investment may represent a loss of competitiveness caused by third country competition, with lower costs and more attractive conditions. It is too early to conclude whether we are facing a cyclical and brief phenomenon influenced by the 1998 Asian crisis, or whether it is of a structural nature. I have often claimed that our participation in the euro was something like a wager, and I have always trusted that we would win such wager. However, this process includes the introduction of structural changes in the productive structure, serving as a basis for new comparative advantages. In the present circumstances, this is more dependent on the entrepreneurial agents rather than on public policies. The only possible shortcoming of policies may be related to a lack of risk capital to stimulate investment in Portugal instead of abroad. Currently, however, public policies provide a framework of perfect macroeconomic stability and low financing and capital access costs. This promotes

modernisation and expansionary productive investment. These are the largest advantages and the greatest opportunity created by the euro. Advantage ought to be taken of it, with a view to leading to an indispensable structural repositioning of Portuguese economy. Companies are now competing on the basis of a strong currency and cannot let themselves be misguided by short-term facilities. The Unions shall also be responsible for calibrating their claims in compliance with the new competitive context before us, if they are effectively trying to defend employment. There will be no devaluations or subsidies to support companies that have lost their competitive positions because they have not taken modernisation initiatives, or because they have not increased the technological contents of their production processes or the quality of their products. The path we are following is demanding and beyond the point of no return, but it is the best way to ensure our future progress.

The acuity of these statements will be even more significant, if the euro appreciates in the near future, increasing competitive pressures from third countries. No one should entertain any illusions that the recent weakness of the euro implies that we could classify it in the group of weak currencies. Conjunction differences vis-à-vis the American economic stance lie behind its present depreciation. Over the 1990's, the Deutsche mark also experienced two depreciation cycles vis-à-vis the dollar and no conclusions were drawn that it was a weak currency.

Actually, what defines the quality of a currency can be summed up by the following aspects: It must be managed in an appropriate manner, thereby ensuring macroeconomic stability and low inflation; it must be adequately credible, in order to lead to low long-term interest rates; it must have liquidity available in all instruments and maturities. The euro does comply with all these criteria. Inflation is lower in Europe. Ten-year bond interest rates in European countries are lower than US interest rates for the same maturity. This means the markets are confident that, in the long run, inflation in Europe will tend to be lower than in the USA, thus reflecting their confidence in the way the euro will be managed. Finally, there is no lack of liquidity in the different financial instruments denominated in euro.

Evidence indicates that the euro is therefore destined to play an increasing role within the international monetary system and to appreciate in the future. The USA, unlike Europe, continues to reveal a rather negative balance of payments. This will eventually be reflected in the exchange rate of the dollar. Over time, the euro will grow in relevance and value. More important than that, however, is that the euro will be the instrument to maintain low inflation in the European economy, guaranteeing good conditions for steady economic growth.

The objectives of the European Central Bank do not include the «defence» of a given exchange rate for the euro. The purpose of European monetary policy is to pursue internal objectives of stability and inflation control. As the Euro Area is a relatively closed economy the exchange rate does not have a decisive influence on domestic inflation. It would therefore be wrong to adopt the exchange rate as an intermediate objective of monetary policy. If monetary policy is able to maintain a low inflation trend, the euro will continue to be a strong currency, a position that will be fully reflected on its exchange rate. The attempt to create a «target zone» system for the major currencies would have led to higher interest rates in Europe to «protect» the euro. The result would have jeopardised the recovery of the European economy and the reduction of unemployment. The reason behind the creation of the euro by the European Union lies precisely in the possibility it opens of leading an autonomous monetary policy, chiefly concerned with the pursuit of its own objectives and detached from external situations. The indispensable efforts of international monetary cooperation in occasional situations of strong imbalances do not question that basic guideline.

The above is directly related with the change of functions experienced by the Banco de Portugal. Without its own monetary policy, but fully committed to the European System of Central Banks, the technical preparation requirements have increased, with a view to ensuring our effective participation and to complying with the numerous requests for data and analysis is submitted by the ECB. The responsibilities related with the supervision of payment systems and, chiefly, with the supervision of financial institutions have also

increased, since the Banco de Portugal is the custodian of the financial system stability. The Minister of Finance has just announced the changes he intends to introduce in financial regulation. The guidelines he has outlined seem to be appropriate to our situation and are in line with the best international trends towards the introduction of further co-ordination, without the merger of specialised institutions that may even have conflicting perspectives on the different interests to be protected.

Other changes are imminent in the supervision area, especially the significant changes in the regulation about capital requirements of credit institutions, within the scope of the Basle Committee and of the European Commission. On the other hand, I believe that it is necessary to introduce some changes in the Deposit Guarantee Fund scheme as well as in the Legal Framework of Credit Institutions and Financial Companies.

The above tasks do not fully cover all of Banco de Portugal's functions. Among these, there is a particular area where I even intend to widen the Bank's mission — the provision of services to the community. I am referring to domains such as information, research and economic training, areas in which the Bank's capacities should be more open to the requirements of the general public. The Bank has a duty to further support the informed debate of the country's economic and social problems, even if these go beyond the strict domain of monetary policy. In particular, I intend to develop a *new information service for the consumer*, as it exists in the US Federal Reserve System, with a view to informing the consumer about the utilisation of financial services and to promoting the best system practices. This means, essentially, to inform and clarify, without promising any support that might lead to a sentiment of irresponsibility among consumers in their transactions with the banks, in particular those transactions increasing their level of indebtedness. In addition to the specific service it provides, this approach falls within the notion of a well-performed supervisory function, since it also contributes for the better protection of financial service users. A better knowledge and sophistication in the utilisation of financial products on the part of the users is essential to ensure that their choices do not distort the investment saving process. This

also contributes to maintain confidence in the system and to ensure a better performance of its important task of allocating financial resources.

All aspects I have mentioned above mean that, despite the stability of the Portuguese situation, the tasks I will have to face in the Banco de Portugal are only apparently less demanding than those I had to face the first time I carried out these functions. I am considering this return to the public service with deep enthusiasm and with a high sense of responsibility. To serve my country and the European project is a stimulating mission that I take with the highest degree of exigency. I am

aware of the difficulties still confronting Portugal before it can fully assert itself as a developed and modern country, within the present competitive environment. However, I face the future with the confidence of someone who has witnessed all the stages of the steady progress that, collectively and regardless of different governments and normal political conflicts, we were able to ensure and that democracy and the participation in the European Union have brought to Portugal.

Lisbon, 23 February 2000

## THE PORTUGUESE ECONOMY IN 1999 AND PROSPECTS FOR 2000

### 1. INTRODUCTION

The development of Portuguese economy in 1999 was characterised by a deceleration in real activity, reflecting both a slowdown in all domestic demand components — with the exception of public consumption — and a less favourable external environment. However, the growth of Portuguese economy remained above the one observed in the euro area. In 1999 there was a further increase in external borrowing requirements, reflecting the strong expansion of credit to the non-financial private sector of the economy. There was also a reduction in the unemployment rate, in line with the current stage of the economic cycle, and a decline in the inflation rate, which resulted from the dispersion of a set of temporary effects affecting price behaviour in 1998 and in early 1999<sup>(1)</sup>.

According to Banco de Portugal estimates, the real growth of Gross Domestic Product (GDP) stood at 3.0 per cent in 1999, which accounts for a 1.2 percentage point (p.p.) deceleration vis-à-vis 1998<sup>(2)</sup>, confirming, in general, the projections presented in the September and December 1999 issues of the *Economic Bulletin*. The estimates included in this Bulletin are for the first time obtained on a national account basis, although still very preliminary, developed in compliance with the European System of Accounts 1995 (ESA95) system<sup>(3)</sup>.

(1) See, for example, “*The Portuguese Economy in 1999*”, *Economic Bulletin* of the Banco de Portugal, December 1999, Section 5 - Inflation.

(2) According to the estimates released in this *Economic Bulletin*, real output growth stood at 3.7 per cent and 4.2 per cent in 1997 and 1998 respectively (Table 3.1). By comparison with previous issues of the *Economic Bulletin* and the 1998 Annual Report, the growth rate for 1997 was revised downwards by 0.1 p.p., while the rate for 1998 was revised upwards by 0.4 p.p.

In the course of 1999, the growth pattern of Portuguese economy underwent important changes. In annual terms, as above mentioned, both domestic demand and net external demand contributed to the output deceleration. However, in the second half of the year, the slowdown in domestic demand was offset by a less negative contribution of net external demand to growth, reflecting an acceleration of exports of goods, supported by the recovery in international economic activity. These mixed developments resulted in a relative stabilisation of GDP growth in the course of the year.

(3) On 4 April the *Instituto Nacional de Estatística* (INE) made available to the Banco de Portugal data from the National Accounts according to ESA95, at a relatively detailed level for 1995 (at current prices) and for 1996 (at current and previous-year prices). These data were the basis for the preparation of the estimates presented in this *Economic Bulletin*.

It should be noted that in October 1999 the INE had presented for the first time the main National Accounts aggregates according to ESA95. However, these data were not sufficiently broken down for the years covered by these accounts (1995-1998). In particular, they did not show the breakdown of nominal changes into volume and price changes.

Thus, the estimates shown in this *Economic Bulletin* use the version of 4 April as a nominal basis, and do not take into account the data disclosed by the INE in October. Considering the limitations described, the estimates shown in this *Economic Bulletin* have a higher-than-usual degree of uncertainty due to the instability in the underlying accounting basis.

As regards general government accounts, the version presented by the INE to Eurostat in February, within the scope of the excessive deficit procedure, raises some problems regarding the classification of revenues and expenditures in 1998 and 1999. Thus, the figures used for these years correspond to the best possible calculations, which reconcile information from ESA79 and ESA95. Hence, as regards National Accounts estimates for the general government, major revisions are also likely to be made, in particular when the INE and the Ministry of Finance release new versions of the public accounts.

In March, the inflation rate in Portugal, as measured by the year-on-year change in the Harmonised Index of Consumer Prices (HICP), stood at 1.4 per cent, i.e., 0.7 p.p. below the euro area figure. Similarly to 1999, the price deceleration recorded in Portugal during the first quarter of 2000 was in contrast to the upward trend of the HICP year-on-year change observed in the euro area. This trend was partly explained by the fact that the increase in fuel prices in other euro area countries led to an acceleration in consumer prices, while in Portugal those prices remained unchanged until end-March.

According to projections released in this *Economic Bulletin*, the growth pattern recomposition recorded in 1999 will be more marked in 2000. A further slowdown in domestic demand and a sharp acceleration in exports are expected, in line with a more favourable international environment. As a result, GDP growth will probably stand within the 2¾ to 3¾ range in 2000. The strong deterioration in terms of trade projected for 2000 — reflecting to a large extent oil price changes in international markets — and the fact that real import growth may again exceed export growth, will lead to a further increase in external borrowing requirements. The aggregate deficit of both current and capital accounts is thus expected to rise from 6.6 per cent of GDP in 1999 to a level between 8½ and 9½ per cent of GDP in 2000.

## 2. EXTERNAL ENVIRONMENT OF PORTUGUESE ECONOMY

### 2.1 Euro area international environment

The improvement of the euro area external environment, apparent in the course of 1999, is expected to proceed during the present year. According to the International Monetary Fund (IMF), the world economic activity will accelerate in 2000, after a higher-than-expected recovery in 1999 (Table 2.1). The world output growth is expected to reach 4.2 per cent (3.3 per cent in 1999). Growth projections were, in general, revised upwards, especially in the United States of America (USA), where expansion is expected to remain sustained, and in most Asian economies. The IMF considers that the risks concerning the forecasts for 2000 are mostly upwards. However, the IMF

warns against the persistence of uncertainties associated with these projections. In particular, it stresses the possible occurrence of sharp corrections of imbalances emerged during the long USA expansion process, namely at the level of external accounts and capital markets, potentially leading to global consequences.

World trade of goods and services is expected to grow stronger in 2000, increasing by around 8 per cent (4.6 per cent in 1999), i.e. at a rate closer to that recorded immediately before the Asian crisis. Imports in developing countries are likely to record the most pronounced recovery in the current year. According to IMF forecasts for advanced economies, imports are likely to grow more moderately than in 1999 in the United Kingdom and the USA, although maintaining a significant growth in the USA.

The global recovery of activity was accompanied by a very sharp increase in oil prices since early 1999, mostly due to cutbacks in production decided by oil exporting countries. Although the consequences of this increase for importing countries were less significant than in the past, they were worthy of note both in the trade account and in price indicators. Prices continued to accelerate up to March at the consumer and, in particular, at the producer level (Chart 2.1). Increases in oil production quotas, agreed by the Organisation of the Petroleum Exporting Countries (OPEC) in end-March, are expected to contribute to the oil price stabilisation. The Brent price showed a downward trend during the past weeks, following the high levels reached in early March, which became more marked in the wake of the OPEC's decision. In the first fortnight of April, it stood close to 22 USD/barrel, i.e. approximately 12 per cent below its average level in December 1999.

IMF forecasts point to a higher inflation in the advanced economies as a whole in 2000, although remaining at moderate levels (1.9 per cent) (Table 2.1). In the early months of 2000, the monetary authorities response in several countries, intended to countering the risks to price stability in the medium term, was reflected in an increase in short-term interest rates (Chart 2.2). Long-term interest rates declined in February and March, following the upward trend previously recorded. In the case of the USA, the decrease was probably more marked due both to the expected reduction



Table 2.1

## PROJECTIONS OF THE INTERNATIONAL MONETARY FUND AND OF THE EUROPEAN COMMISSION

	Gross domestic product – real rate of change							
	IMF				European Commission			
	1999	2000	Revisions (p.p.)		1999	2000	Revisions (p.p.)	
			1999	2000			1999	2000
World economy .....	3.3	4.2	0.3	0.7	—	—		
Countries in transition .....	2.4	2.6	1.6	-0.2	—	—		
Developing countries.....	3.8	5.4	0.3	0.6	—	—		
ASEAN-4 <sup>(a)</sup> .....	2.5	4.0	1.1	0.4	—	—		
Advanced economies.....	3.1	3.6	0.3	0.9	—	—		
NIC <sup>(b)</sup> .....	7.7	6.6	2.5	1.5	—	—		
Euro area.....	2.3	3.2	0.2	0.4	2.3	3.4	0.2	0.5
United Kingdom.....	2.0	3.0	0.9	0.6	2.0	3.3	0.2	-0.1
USA .....	4.2	4.4	0.5	1.8	4.1	3.6	0.3	0.8
Japan.....	0.3	0.9	-0.7	-0.6	0.3	1.1	-1.0	-0.5
	Consumer prices – rate of change <sup>(c)</sup>							
	IMF				European Commission			
	1999	2000	Revisions (p.p.)		1999	2000	Revisions(p.p.)	
			1999	2000			1999	2000
Advanced economies.....	1.4	1.9	0.0	0.1	—	—		
Euro area.....	1.2	1.7	0.2	0.4	1.1	1.8	-0.1	0.3
United Kingdom.....	2.3	2.0	0.0	-0.2	1.3	1.4	-0.1	-0.1
USA .....	2.2	2.5	0.0	0.0	2.3	2.6	0.1	0.2
Japan.....	-0.3	0.1	0.1	0.1	-0.3	-0.2	0.0	-0.5

Sources: International Monetary Fund, World Economic Outlook April 2000 vs. October 1999 and European Commission, Economic Forecasts Spring 2000 vs. Autumn 1999.

Notes:

(a) Indonesia, Malaysia, Philippines and Thailand.

(b) Korea, Hong-Kong, Taiwan and Singapore.

(c) Euro area: HICP for the European Commission; United Kingdom: CPI excluding mortgage interest payments for the IMF and HICP for the European Commission.

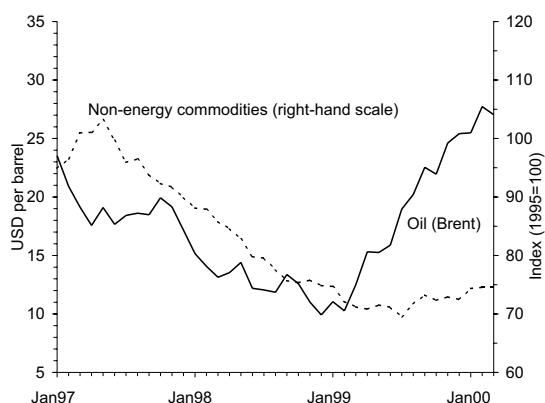
in the future supply of securities by the USA Treasury and to portfolio reallocations from stocks to bonds. In March, 10-year yields in the USA and the United Kingdom stood at levels similar to those recorded in December 1999 (6.3 and 5.3 per cent, respectively). In foreign exchange markets, the euro depreciated further vis-à-vis the dollar in the first three months of the year (by 4.6 per cent from December 1999 to March 2000). During this period, and unlike previous developments, the yen depreciated vis-à-vis the dollar (by 3.6 per cent).

In 1999 the USA economic activity maintained a strong pace of expansion, similarly to the two previous years (4.2 per cent). GDP accelerated in the last two quarters of the year and rose by 4.3

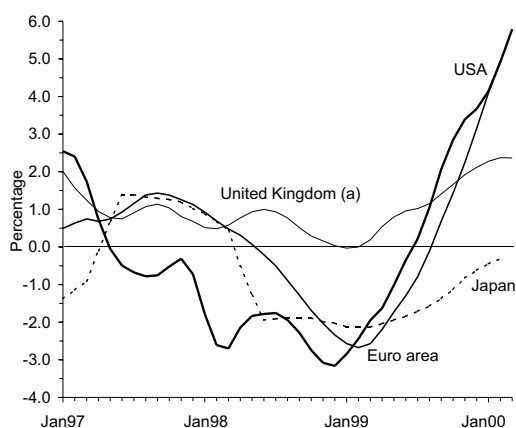
and 4.6 per cent, respectively, year-on-year (Chart 2.3). These developments were due to a higher contribution of domestic demand, particularly private consumption, as net exports contribution to GDP growth remained considerably negative. Imports of goods and services rose around 13 per cent in the second half of 1999 (10.5 per cent in the first half), showing both the higher strength of domestic demand and export recovery in the course of the year.

Indicators for the first months of 2000 show the sustained buoyancy of domestic expenditure, in particular consumption expenditure, which continued to grow at a higher pace than real household income. The consumer confidence remained at significantly high levels, despite some reduction

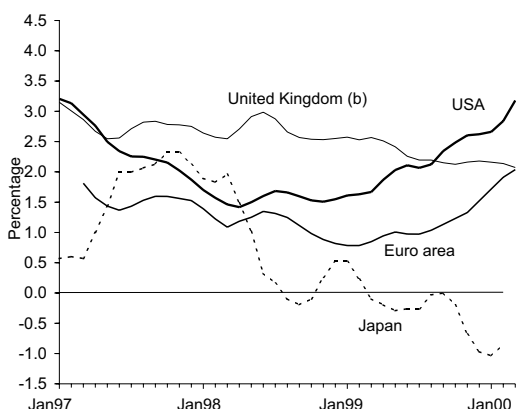
Chart 2.1  
INTERNATIONAL COMMODITIES PRICES  
In USD



PRODUCER PRICES  
Year-on-year rate of change  
3-month moving average



CONSUMER PRICES  
Year-on-year rate of change  
3-month moving average



Sources: Financial Times, The Economist, Datastream and Eurostat.

Notes:

(a) Producer prices – Output.

(b) Excluding mortgage interest payments.

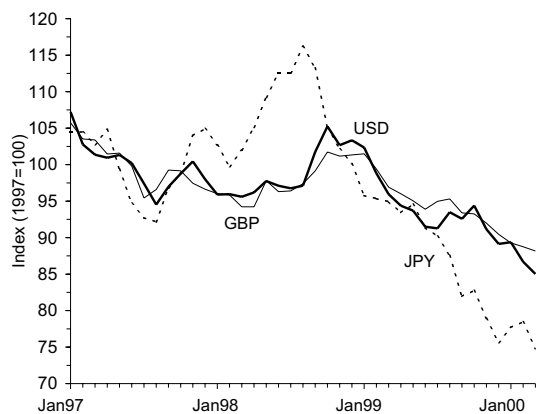
during February and March. For the year as a whole, IMF forecasts point to a 4.4 per cent growth of USA economy, clearly above forecasts at end-1999<sup>(4)</sup> (Table 2.1). The sharp growth of USA demand has contributed to deteriorate some domestic imbalances and, by contrast, the external deficit. According to the IMF, in 2000, the current deficit is likely to widen further from 3.7 to 4.3 per cent of GDP.

Inflation in the USA, as measured by the Consumer Price Index (CPI), maintained an upward trend in the first months of 2000 — the CPI year-on-year change stood at 3.7 per cent in March (2.7 per cent in December 1999) (Chart 2.1). The oil price increase in international markets has been one of the conditioning factors behind price acceleration. However, excluding energy and food prices, the CPI year-on-year change stood at 2.4 per cent in March, which mirrors some acceleration compared with end-1999 (1.9 per cent). At the producer level, excluding food and energy, there is also evidence of less favourable price developments, particularly in intermediate goods industries (3.1 per cent year-on-year change in March against 1.9 per cent in December 1999 and -1.6 per cent a year earlier). Nevertheless, unit labour costs increased moderately until end-1999 (1.7 per cent in the year as a whole, against 2.4 per cent in 1998), partly reflecting strong productivity increases. In the first quarter of 2000, hourly wages still do not show an acceleration, notwithstanding the sustained employment growth (2.2 per cent, in year-on-year terms, as in the previous quarter) and the low unemployment rate (4.1 per cent in March). According to the IMF, inflation in the USA, as measured by the CPI, will stand at 2.5 per cent in 2000 (2.2 per cent in 1999), although subject to considerable risks of inflationary pressures, within a framework of strong domestic and external growth and higher oil prices.

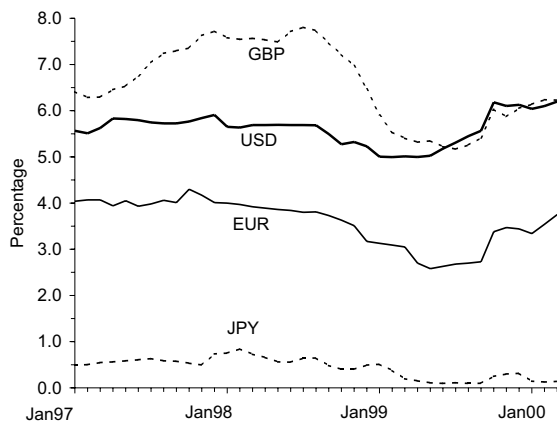
The Federal Reserve raised the federal funds reference rate by a total of 1.25 p.p. since June 1999, the last change having taken place in mid-March (to 6.0 per cent). It was deemed that risks continued to be weighted mainly toward conditions that may generate inflationary pres-

(4) The forecasts point to a deceleration of GDP in 2001 to 3.0 per cent.

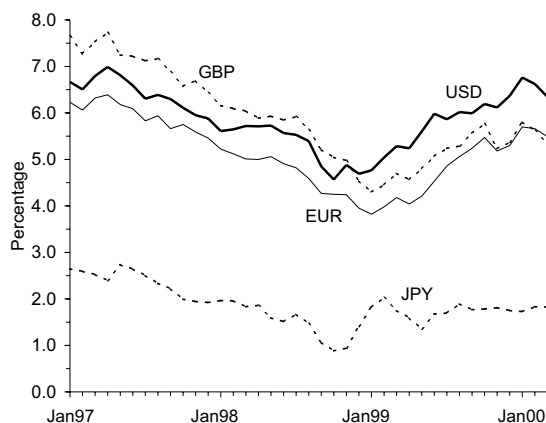
Chart 2.2  
EXCHANGE RATE AGAINST THE ECU/EURO<sup>(a)</sup>



3-MONTH INTEREST RATE



10-YEAR GOVERNMENT BOND YIELD

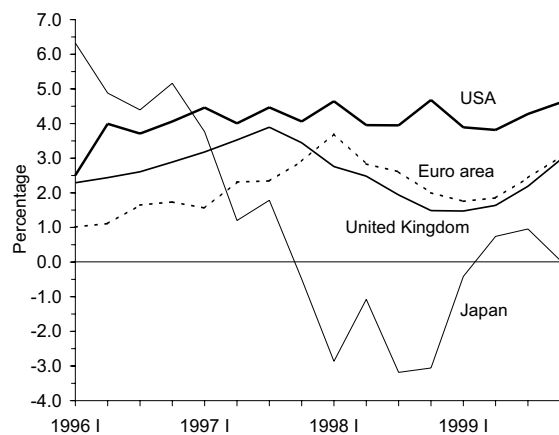


Sources: Bloomberg, Reuters, European Central Bank and Banco de Portugal.

Note:

(a) (+) Appreciation of the ECU/euro.

Chart 2.3  
GROSS DOMESTIC PRODUCT  
Real year-on-year rate of change



Sources: Datastream and Eurostat.

sures that could jeopardise a sustained economic expansion.

The Japanese economy grew by 0.3 per cent in 1999, compared with a fall of 2.5 per cent in 1998. In the wake of the recovery occurred in the first half of the year, GDP decreased from the previous quarter in the two last quarters of 1999. In the fourth quarter, the GDP year-on-year change was nil (1.0 per cent growth in the third quarter) (Chart 2.3). Behind this was the fading out of the public sector incentive which had helped to sustain activity in the previous quarters, and the weakness of private consumption, in the wake of a fall in real compensation. However, the private sector Gross Fixed Capital Formation (GFCF), particularly in equipment and transport material, recovered in the fourth quarter (a 3.3 per cent year-on-year increase, after a 4.6 per cent fall in the previous quarter). Exports continued to improve until the year-end, along with an equally sharp acceleration in imports. The economic recovery recorded in other Asian countries has contributed to curb the influence of the yen appreciation on exports. The yen appreciation in 1999 (approximately 13 per cent, in real effective terms) was discontinued in the early months of 2000. Nevertheless, the yen stands at significantly higher levels than one year earlier (Chart 2.2).

The indicators available for early 2000 show some positive signs regarding the business sector

situation, including the recovery evidenced by industrial production and the more favourable assessment of activity by industrial entrepreneurs. In addition, investment in the business sector is expected to improve in the current fiscal year, which is also suggested by the clear recovery of private machinery orders recorded over the past months. According to the IMF forecasts, GDP is expected to grow by 0.9 per cent in 2000, partly reflecting the effect of the sharp fall in output in the second half of 1999 (Table 2.1). According to the IMF, the recovery prospects are still weak. Activity-supporting macroeconomic policies, as well as sustained progress in structural reforms, in particular at the banking system level, continue to be essential to ensure a lasting recovery.

Although consumer prices in Japan have continued to fall, compared with the same period in the previous year (-0.6 per cent in February), this trend is not deteriorating (Chart 2.1). According to IMF forecasts for 2000, consumer prices are expected to increase by 0.1 per cent (-0.3 per cent in 1999).

The economic activity in Asia, excluding Japan, has strengthened substantially in the course of 1999, and GDP growth has extensively exceeded early expectations in several countries. In the new industrialized Asian economies<sup>(5)</sup>, output grew by 7.7 per cent in 1999 (-2.3 per cent in 1998) while in the economies which were more affected by the 1997/98 crisis<sup>(6)</sup> activity increased by 2.5 per cent (-9.5 per cent in 1998). Recovery may have been initially supported by budgetary policy incentives, in parallel with a marked improvement in exports. According to IMF forecasts, the strengthening of economic activity in these countries will proceed in 2000 (Table 2.1), additionally benefiting from the gradual improvement in private sector domestic demand.

In 1999 the United Kingdom output grew at a pace which was higher than initially expected and close to the one recorded in the previous year (2.1 per cent compared with 2.2 per cent in 1998). The strengthening of activity recorded since the beginning of the year continued during the fourth quarter and GDP accelerated from 2.2 to 3.0 per cent, year-on-year (Chart 2.3). Domestic demand was

particularly strong in this quarter, partly reflecting a sharper increase in private consumption (4.4 per cent) and a less negative contribution from changes in stocks. Net external demand made a further negative contribution to growth (-1.3 p.p.). Imports of goods and services increased further at a higher rate than in the previous quarter (9.0 per cent, in year-on-year terms) and above the exports rate (around 6 per cent).

Early this year, activity expansion is deemed to have continued, led by the services sector. The industrial production recovery, apparent since mid-1999, was not pursued in the first two months of 2000 and, to some extent, it may be curbed by the sharp appreciation of the pound sterling (around 9 per cent, in nominal effective terms, from early 1999 to February 2000) (Chart 2.2). According to the IMF, GDP is expected to grow by 3.0 per cent in the year as a whole (Table 2.1).

On 10 February, the Bank of England raised the repo rate by 0.25 p.p., to 6.0 per cent. The balance of risks to price stability was deemed to be slightly upwards. One of the risks arises from labour market conditions, with the unemployment rate maintaining a downward trend (standing at 4.0 per cent in March, the lowest level in 20 years) and compensation accelerating considerably in recent months, although partly as a result of special factors (bonuses paid around the turn of the year). In addition, the increase in income and wealth (partly as a result of sharp increases in housing prices), as well as in credit, is expected to support a marked buoyancy in private consumption. Nevertheless, until March, inflation — as measured by consumer prices excluding mortgage interest payments — remained relatively stable, below 2.5 per cent (Chart 2.1). However, the spread of price growth between goods and services continued to widen (in March, the year-on-year changes were -0.2 and 4.2 per cent, respectively).

### 2.2 Economic activity in the euro area

The economic activity in the euro area grew by 2.3 per cent in 1999 (2.8 per cent in 1998). The GDP acceleration, apparent as from mid-year, continued in the last quarter and the year-on-year change went up from 2.4 to 3.0 per cent (Table 2.2 and Chart 2.4). Up to year-end, domestic demand grew at a sustained pace (2.8 per cent) while the

---

(5) Korea, Hong-Kong, Taiwan and Singapore.

(6) Indonesia, Malaysia, Philippines and Thailand.

Table 2.2

**EURO AREA — NATIONAL ACCOUNTS**  
Real rate of change

Percentage	1997	1998	1999
Gross domestic product .....	2.3	2.8	2.3
Private consumption .....	1.5	3.0	2.5
Public consumption .....	0.7	1.1	1.2
Gross fixed capital formation .....	2.2	4.4	4.7
Exports .....	10.1	6.8	4.1
Imports .....	8.7	9.1	5.9
Contributions (in percentage points)			
Domestic demand (excluding changes in inventories) .....	1.4	2.8	2.6
Change in inventories .....	0.3	0.5	0.1
Net external demand .....	0.6	-0.5	-0.5

Source: Eurostat.

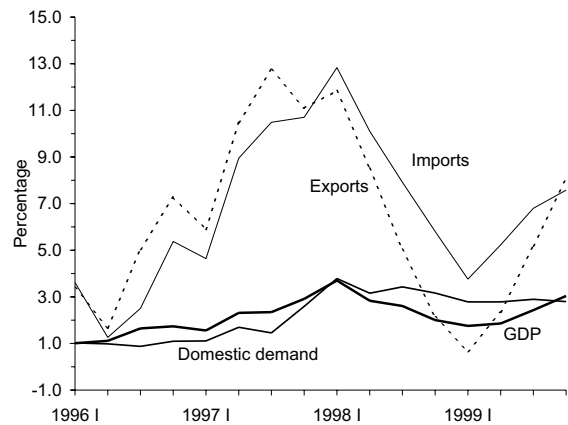
contribution of the external sector to GDP improved considerably as from mid-1999. Exports benefited from the global economic recovery in the course of the year, and its growth rate went up from below 1 per cent in early 1999 to around 8 per cent in the last quarter. In parallel, imports accelerated over the same period from 3.8 to 7.6 per cent.

The available quantitative indicators and opinion surveys for the early months of the current year maintain a positive trend. The most recent European Commission projections point to an acceleration of GDP in 2000, to a 3.4 per cent growth rate (in IMF forecasts it is slightly less pronounced), higher than the one forecast in Autumn 1999 (Table 2.1). This acceleration chiefly reflects more favourable developments in net external demand which, in contrast to 1999, will positively contribute to growth. Demand for euro area exports will continue to strengthen, which, together with the euro real depreciation (around 14 per cent from early 1999 to March 2000<sup>(7)</sup>), are expected to result in an acceleration in exports of goods and services<sup>(8)</sup> from 4.1 to 8.5 per cent. Stress should be laid on the optimism the entrepreneurs continue to show regarding export orders. Imports, together with overall demand, are expected to show a more robust growth in 2000

(7) As measured by relative consumer prices, vis-à-vis a group of 13 trading partners.

(8) Includes trade between countries participating in the euro area.

Chart 2.4  
**EURO AREA — GROSS DOMESTIC PRODUCT AND EXPENDITURE COMPONENTS**  
Real year-on-year rate of change



Source: Eurostat.

(7.9 per cent against around 6 per cent in the previous year). The European Commission also anticipates a moderate strengthening of domestic demand in the current year. The high level of job creation, which is expected to continue in 2000, has positively influenced consumer confidence — it remained at very high levels until March. The best domestic and external demand outlook is positively reflected in entrepreneurs' confidence, favouring investment prospects.

In 1999 Germany and Italy grew at an identical pace (1.4 per cent) and again below the euro area average. France and Spain recorded higher growth rates of 2.7 and 3.7 per cent, respectively. The activity acceleration observed in the euro area as from the mid-year was apparent in the four biggest euro area economies, stress being laid on the more favourable contribution of the external sector to GDP in the second half of the year. European Commission forecasts for 2000 point to a more buoyant activity in most euro area countries and to a narrower differential in the pace of growth between the different economies.

Inflation in the euro area, as measured by the year-on-year change of the HICP, continued to increase until March, to stand at 2.1 per cent against 1.7 per cent at end-1999 (Chart 2.1). The average rate of change increased to 1.4 per cent in that month. The oil price increase recorded in in-



ternational markets up to the beginning of this year, strengthened by the nominal depreciation of the euro, continued to exert an upward pressure on prices at the consumer and mainly at the producer level. Excluding the energy component, the annual change of the HICP stood at 0.9 per cent, the level recorded in December 1999. According to the European Commission, inflation is expected to slow down in the rest of the year, leading to an annual average change of 1.8 per cent in the HICP (Table 2.1). In fact, the impact of the rise in oil prices is expected to fade out in the course of the year, together with continued wage moderation and an improvement in productivity forecast for 2000. However, the European Commission considers that there are upward risks, both domestic and external.

With a view to countering risks to price stability in the medium term, thus contributing to the maintenance of the favourable outlook for the euro area economy, the Governing Council of the European Central Bank (ECB) decided to raise the intervention rates on 3 February, 16 March and 27 April, by a total of 0.75 p.p. The interest rate on the main refinancing operations was raised to 3.75 per cent. The three-month interest rates moved in line with the intervention rates in February and March, after the correction of the effects associated with the transition to the year 2000 (Chart 2.2). The euro area 10-year interest rates declined in those two months, discontinuing the upward movement recorded until then. In March, the 10-year government bond yields stood at 5.5 per cent against 5.3 per cent in December 1999.

### 3. OUTPUT DEVELOPMENTS IN 1999: EXPENDITURE AND PRODUCTION

According to the Banco de Portugal estimates, the real growth of Portuguese economy declined by 1.2 p.p. in 1999, to 3.0 per cent. There was a deceleration both in domestic demand and in exports of goods and services. In line with the slowdown in overall demand, imports also recorded a smaller growth in 1999 (Table 3.1). Within this framework, the contribution of net external demand to output growth continued rather negative, although in absolute terms, less than in the previous year (-2.2 per cent, compared with -2.9 per cent in 1998).

Table 3.1

#### MAIN ECONOMIC INDICATORS Percentage rates of change

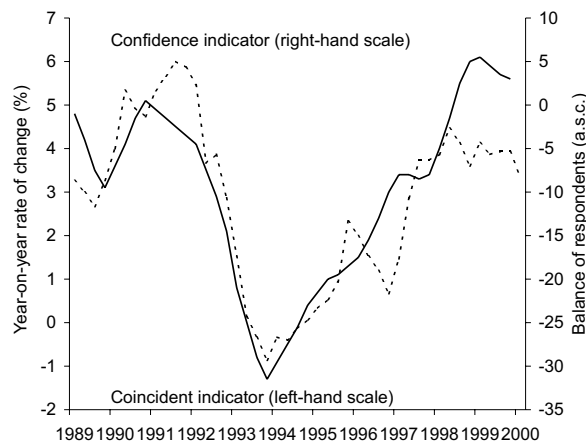
	1997	1998	1999
Private consumption .....	3.1	6.1	4.9
Public consumption .....	2.7	3.2	3.4
GFCF .....	11.9	10.3	5.3
Domestic demand .....	4.9	6.6	4.8
Exports .....	9.5	8.5	4.6
Overall demand .....	5.9	7.0	4.8
Imports .....	12.0	14.2	9.0
GDP .....	3.7	4.2	3.0
Current + capital account balance (as a percentage of GDP)...	-3.2	-4.8	-6.6

Note: Estimates in ESA95.

The major factor behind the slowdown in economic activity in 1999 was probably the more unfavourable international environment, in line with the development of the euro area economy, where most of the country's external economic relationships are concentrated. The industrial sector was particularly affected, which was reflected in the growth rate of both exports of goods and business investment. There was also a strong deceleration in exports of services, when compared with the World Exhibition "Expo98" period. Finally, in the third quarter of 1999, the downward trend in interest rates was reversed, which was also reflected in their medium-term development expectations. However, at end-1999, rates still stood at historically low levels, below those recorded one year earlier. This continued to contribute, although less significantly than in 1998, to a strong growth of domestic demand, higher than in the euro area.

In 1999 GDP grew slightly more than projected in the December *Economic Bulletin*. Current estimates point to a more buoyant domestic demand, which reflects, to a large extent, a more marked growth in public consumption and in GFCF. The information released in the meantime on external trade flows — both on nominal and price changes — also led to an upward revision of the growth estimates of export and import volumes vis-à-vis the December *Economic Bulletin*. Finally, it should be noted that the adoption of the new ESA95 national accounts basis for 1995 and 1996 also implied a revision of the growth estimates for 1999

Chart 3.1  
CONFIDENCE INDICATOR AND COINCIDENT  
INDICATOR OF PRIVATE CONSUMPTION



Sources: European Commission and Banco de Portugal.

and previous years<sup>(9)</sup>, due to the changes introduced in the weights of the several expenditure components of GDP.

In the course of 1999, there was an important change in the composition of economic growth. In the first half of the year, both domestic demand and net external demand contributed to the output deceleration. However, in the second half of the year, while domestic demand growth continued to decline, the contribution of net external demand to growth became less negative, in the wake of an acceleration in exports of goods, supported by the recovery of international economic activity. These developments with inverted signs seem to have resulted in a relative stabilisation of GDP growth in the course of the year.

In 1999 private consumption recorded a further significant growth, estimated in 4.9 per cent, although more moderately than in the previous

year (6.1 per cent). Broken down by consumption class, the information available points to a slow-down in household expenditure in durable goods and services. Sales of new light passenger vehicles including four-wheel drive increased by 11.4 per cent in 1999, decelerating vis-à-vis the previous year (17.9 per cent). The retail trade turnover index of furniture and other home articles also recorded a real deceleration, from 9.8 per cent in 1998 to 6.5 per cent in 1999<sup>(10)</sup>, in real terms. Private consumption deceleration in 1999 is also related to a lower growth of household expenditure in services — particularly hotels, restaurants and transports — which had increased strongly in the previous year due to the “Expo98”. It should be noted that residents’ nights spent in Portuguese hotels and similar establishments increased by 3.7 per cent in 1999 (7.8 per cent in 1998)<sup>(11)</sup>. The trend of the private consumption coincident indicator — which supplies a synthesis of qualitative information on this expenditure component — illustrates the strong growth of private consumption in 1999, which decreased in the course of the year (Chart 3.1).

Several factors are behind the fact that private consumption has continued to grow at a high pace in 1999, higher than output growth. On the one hand, consumer confidence remained at high levels, reflecting a favourable assessment of the expected and actual financial situation of households (Chart 3.1). On the other hand, the trend of the interest rates — which, in annual average, decreased further in 1999, albeit to a lesser extent than in previous years, standing at historically low levels — continued to encourage credit to finance both house purchase and consumption. Therefore, the increase in household consumption expenditure exceeded again the rise in real disposable income, and the saving rate is estimated to have declined further, by around 2.3 p.p. in 1999.

Household real disposable income<sup>(12)</sup>, excluding external transfers, increased by 2.2 per cent in

(9) The estimate for economic growth in 1998 was revised upwards from the December 1999 issue of the *Economic Bulletin* (from 3.8 per cent to 4.2 per cent). This revision reflected, on the one hand, the adoption of the new ESA 95 national accounts basis for 1995 and 1996, and on the other, the consideration of new statistical data (information on the general government, 1995-base industrial production index, final data for the 1998 world trade, etc.).

(10) Real change obtained by using as deflator the respective Consumer Price Index.

(11) Rates of change obtained in 1998, by comparing final data for 1998 and 1997; in 1999, by comparing first-version and revised data for 1999 with first-version and revised data for 1998.

(12) Reference should be made of the particularly precarious nature of the estimates concerning the disposable income of households and the private sector, and hence of the savings rate estimates. In fact, the INE has not yet published, for any year, household and private sector accounts based on the ESA 95, wherefore it has been resorted to the existing item-by-item data, completed with a number of assumptions based on the ESA79 accounts.

1999, considerably less than in the previous year (5.4 per cent). However, labour income — the main component of disposable income — and property income have recorded rather divergent developments. Wages maintained a significant nominal growth (7.9 and 8.3 per cent increases in 1999 and 1998, respectively). This growth was accounted for by a rise in the number of wage earners and by an increase in earnings per head close to that recorded the year before. As in previous years, wages per employee grew more markedly in general government than in the private sector (6.0 and 5.5 per cent, respectively). By contrast, property income decelerated sharply (from 7.8 per cent in 1998 to 0.2 per cent, in nominal terms, in 1999). These developments were due to a lower growth in the operating gross surplus and, in particular, to a significant reduction in net interest received by households. In 1999 interest received by households fell more markedly than in the previous year (by -31.6 and -10.4 per cent, respectively). On the other hand, interest paid by households remained broadly unchanged, while in 1998 they had fallen significantly (-0.4 and -12.0 per cent changes, respectively). In 1999 the strong increase in household borrowing continued to be compatible with a reduction in interest paid, as a result of the interest rate behaviour, although the favourable effect of the interest rates was considerably lower than in 1998.

At end-1999 individual borrowing to the financial sector stood at around 77 per cent of the available income, compared with 63 per cent at end-1998. In 1999, loans to households recorded again rather high growth rates, despite a tendency to a slight slowdown during the second half of the year. In December, this aggregate showed a year-on-year change of 28.0 per cent, compared with an annual peak of 34.9 per cent in June and 31.4 per cent in December 1998. Behind this slowdown was the trend of bank lending rates, which, as from the third quarter of the year, interrupted — and in some cases inverted — the downward trend recorded during the 1990s, as well as the changes introduced in the subsidised system for house purchasing and building<sup>(13)</sup> in mortgage loans.

---

(13) For further information on the changes introduced, see the June 1999 issue of the *Economic Bulletin*, page 15.

In 1999 public consumption recorded a real growth of 3.4 per cent (3.2 per cent in 1998). Nominal public consumption grew by 8.6 per cent, after 8.8 per cent in 1998, which was accounted for, in particular, by staff cost developments. This expenditure recorded a 9.2 per cent nominal growth (9.4 per cent in 1998), reflecting a significant increase in the number of public sector employees<sup>(14)</sup> and a rise in wages *per capita* highly above the 3.0 per cent increase envisaged in wage settlements. Expenditure on goods and services, in turn, recorded a 6.9 per cent nominal growth (7.4 per cent in 1998).

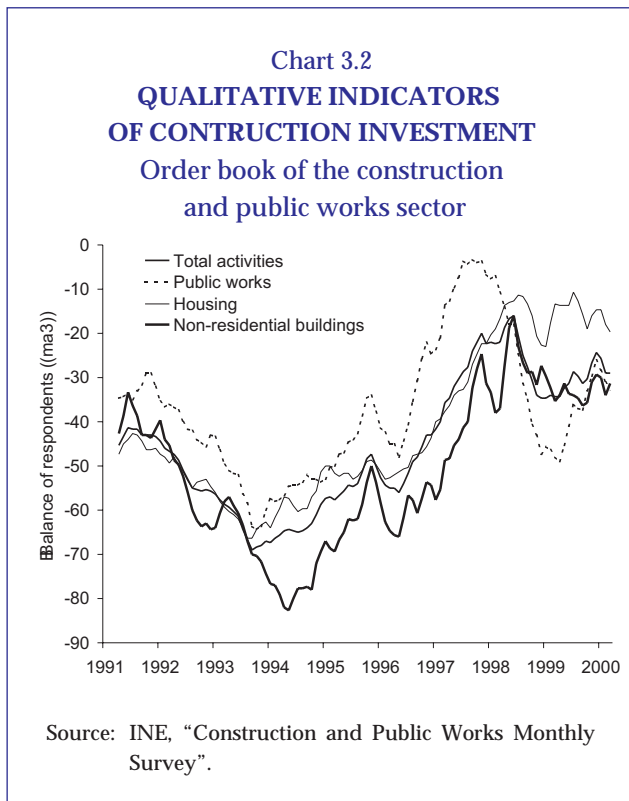
According to the Banco de Portugal estimates, GFCF recorded a real growth of 5.3 per cent in 1999, strongly decelerating vis-à-vis the previous year (10.3 per cent). This deceleration was generalised for types of goods — machinery, transport material and construction. The slowdown resulted from the private sector behaviour (households and companies), since direct investment by the general government had an 11.2 per cent nominal increase, accelerating vis-à-vis the previous year (3.1 per cent). Changes in stocks have probably contributed to an increase in GDP identical to that recorded in the previous year (0.1 p.p.).

GFCF deceleration in 1999 may be explained by several factors. In 1999 industrial confidence decreased from the previous year, particularly in the first half of the year, reflecting a less positive assessment of expectations of overall demand and mainly of external demand. Nevertheless, interest rates continued to be an incentive to bank credit financing in 1999. Therefore, borrowing by non-financial corporations continued to increase, reaching around 71 per cent of GDP at the year-end (64 per cent of GDP at end-1998). Turning to investment in construction, emphasis should be laid on the deceleration in the public works sub-sector, which, however, recovered at year-end (Chart 3.2). It should be noted that part of this type of investment is not directly made by general government. On the other hand, investment in the housing construction sector remained buoyant, and continued to be stimulated by the interest rate

---

(14) The number of workers registered in *Caixa Geral de Aposentações* (Pension scheme) increased by 4.1 per cent in 1999. The actual growth of the number of public sector employees appears to have been smaller (around 3 per cent).



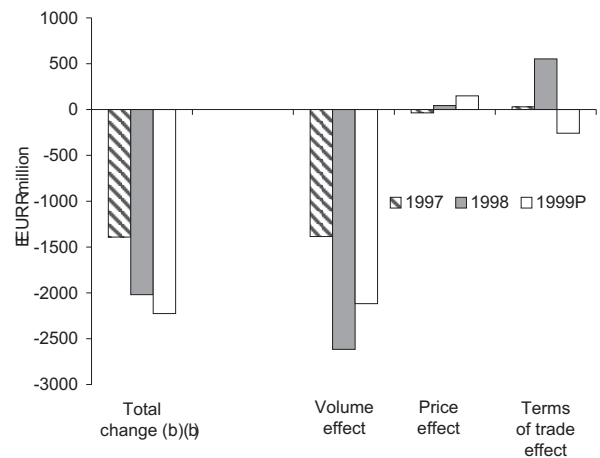


level and by the high level of household confidence. In 1999 loans to individuals for house purchase recorded again very high growth rates (29.7 per cent in December, compared with 34.8 per cent in December 1998), although decelerating as from the middle of the year.

In 1999 there was a real deceleration both in exports of goods and services (a 4.6 per cent increase against 8.5 per cent in 1998) and in imports (a 9.0 per cent growth against 14.2 per cent in 1998). The deficit in the goods and services account widened further in 1999, compared with the previous year (from 9.5 to 11.0 per cent of GDP). The most important contribution to this increase resulted again from the growth differential between import and export volumes, although in 1999 terms of trade developments have also contributed to the rise in deficit, in contrast to the previous year (Chart 3.3).

According to the Banco de Portugal estimates, in 1999 as a whole, the export prices of goods and services decreased by 1.1 per cent, while import prices dropped by 0.7 per cent. There was, thus, a slight loss, of -0.4 per cent in terms of trade, in contrast to the 1.7 per cent gain recorded in 1998. This loss in terms of trade resulted, to a large extent, from the strong increase in international oil prices in the second half of the year.

**Chart 3.3**  
**BREAKDOWN OF THE CHANGE IN THE GOODS**  
**AND SERVICES ACCOUNT BALANCE<sup>(a)</sup>**



Notes:

(a) The change in the goods and services balance can be broken down into:

- volume effect - effect of the change in exported and imported volumes

$$[X_{t-1} \cdot Vx_t \cdot (1 + Px_t)] - [M_{t-1} \cdot Vm_t \cdot (1 + Pm_t)]$$

- price effect - effect of the average growth of external trade prices

$$(X_{t-1} \cdot P_t) - (M_{t-1} \cdot P_t)$$

- terms of trade effect - effect of the relative change in export and import prices

$$[X_{t-1} \cdot (Px_t - P_t)] - [M_{t-1} \cdot (Pm_t - P_t)]$$

where:

$X_{t-1}$  and  $M_{t-1}$  - exports and imports in year t-1 at current prices

$Vx_t$  and  $Vm_t$  - export and import growth, in volume, in year t

$Px_t$  and  $Pm_t$  - export and import prices growth in year t

$P_t$  - average growth of external trade prices in year t  $[(Px_t + Pm_t)/2]$

It should be noted that the volume effect includes the price-volume cross effect, so that the sum of the three effects coincides with the total change. However, this cross effect is not very significant.

(b) A negative change denotes an increase in the goods and services account deficit.

The lower real growth of exports of goods and services resulted from the behaviour of the exports of both goods and services. The deceleration in exports of services was particularly sharp (0.7 per cent growth in 1999 against 12.7 per cent in 1998). In particular and as expected, tourism real revenue decelerated significantly against the previous year (a -0.6 per cent change in 1999, in contrast to a 12.3 per cent increase in 1998, related to "Expo98"). It should be noted, however, that the maintenance

of nominal tourism revenue at 1998's level indicates that 1999 was a good year in terms of tourism.

The real growth of exports of goods was 6.1 per cent, compared with 7.1 per cent in 1998. The nominal deceleration was extensive to intra- and extra-European Union markets<sup>(15)</sup>. The real deceleration was also relatively broadly based across groups of products. Turning to the so-called traditional sectors, the export volumes of the products included in "wood, cork and paper" and "clothing and footwear" decreased further in 1999, while external sales of "hides, leather and textiles" showed again a considerably lower-than-average increase. Exports of transport equipment decelerated strongly, recording a 2 per cent real growth, in contrast to the high increases over the past few years. Machinery was the only group of products whose exports showed a very high real growth (around 30 per cent), similarly to the past few years<sup>(16)</sup>.

The export volumes showed mixed developments in the course of the year: after the deceleration recorded from the second half of 1998, exports recovered in the second half of 1999, reflecting economic activity developments at international level (Chart 3.4).

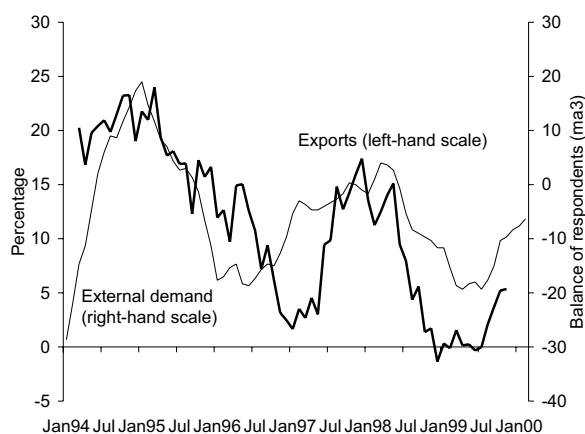
The external demand for the Portuguese economy, measured as the weighted average of the volume growth of manufactured imports<sup>(17)</sup> of destination countries, increased by 5.2 per cent in 1999 (9.7 per cent in 1998). The comparison

(15) The value of sales of goods to European Union markets increased by 4.9 per cent in 1999, from 7.9 per cent in 1998. Exports to countries outside the European Union declined by 3.6 per cent in 1999, in nominal terms (-0.3 per cent in the previous year).

(16) In 1999 exports of machinery partly reflected the entry into operation of a new manufacturing unit for computer components. It should be noted that these computer components are imported, partly processed and re-exported, giving rise to a relatively reduced added value. Real growth of total exports of goods, excluding goods from the sub-group "office equipment and computers" - which includes the exports of the above-mentioned manufacturing unit - reached 3.4 per cent in 1999. It should also be noted that the impact of the sub-group "office equipment and computers" on the nominal rate of change of total exports of goods was much less significant than the impact on the volume change, given that there was a sharp reduction in the export price of this sub-group, along with a significant volume increase. In value terms, the growth of total exports and excluding exports of the above sub-group, was 4.1 per cent and 3.6 per cent respectively.

Chart 3.4  
MERCHANDISE EXPORTS AND EXTERNAL DEMAND

Non-accumulated year-on-year rate of change of the quarter ended in each month (in nominal terms) of exports and assessment of external order books



Sources: INE and European Commission.

Note: The non-accumulated nominal change was calculated by the Banco de Portugal on the basis of the final figures up to 1998. In 1999 the change was computed from the latest data available for the current year, in comparison with the figures for the corresponding period a year earlier.

between the growth of Portuguese exports of goods (6.1 per cent) and the growth of this external demand indicator points to a gain in market share in 1999 (around 1.0 per cent, in contrast to a loss of 2.3 per cent in 1998). However, these results should be interpreted with some caution, especially due to the fact that the external demand indicator was derived from data of the December 1999 issue of the OECD *Economic Outlook* that may be revised after the release of the next OECD forecasts<sup>(18)</sup>. It should also be noted that for the European Union as a whole there was a reduction in export market shares, both in 1998 and in 1999.

(17) The definition of manufacturing excludes the goods from sections 0 to 4 of the Standard International Trade Classification. It is worth mentioning, in particular, the exclusion of raw materials and fuels.

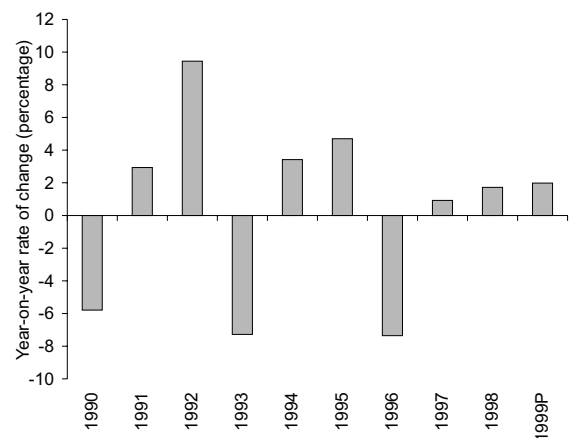
(18) The estimates for the imports of goods and services from our major trading partners in 1999, made by other international organisations - for instance, the European Commission and the IMF - from the Autumn 1999 to the Spring 2000 were clearly revised upwards.

An assessment based on the profit margin aggregate measure suggests that the export sector should have recorded a further reduction in profitability in 1999 (around 1.5 per cent, after a 1.4 per cent loss in 1998)<sup>(19)</sup>. On the other hand, unit labour costs in Portuguese manufacturing industry continued to evolve highly above the corresponding costs in major trade partners (3.9 and 0.6 per cent respectively, evaluated in the respective currencies). These developments were partly offset by the foreign exchange depreciation, so that the increase in relative unit labour costs was 2.0 per cent in 1999 (1.7 per cent in 1998) (Chart 3.5). It should be noted that, in the framework of the participation in Economic and Monetary Union (EMU), the maintenance of competitiveness of Portuguese producers strengthens the need that wage increases are justified by productivity growth.

In 1999 as a whole, imports of goods and services recorded a real growth of 9.0 per cent against 14.2 per cent in 1998, in parallel with the slowdown in overall demand (from 7.0 to 4.8 per cent). The volume of goods purchased from abroad grew 10.3 per cent in 1999, compared with 14.8 per cent in the previous year. An analysis of the imports of goods, classified according to their economic utilisation, reveals that the slowdown was extensive to all major economic items considered, with the exception of fuels. The deceleration in household consumption expenditure is likely to have determined a lower increase in import volumes of consumption goods, which, nonetheless, continued to show very high growth rates in 1999. The good agricultural year in 1999 is expected to have contributed somewhat to curb the growth of imports of foodstuffs. Imports included in the item equipment goods have also decelerated, particularly machinery imports. Finally, imports of intermediate goods decelerated, probably reflecting the lower growth of industrial production in the year as a whole.

(19) The unit profit margin indicator derives from the comparison between the export price of goods and an aggregate cost measure which includes unit labour costs and import prices intermediate goods (aggregated according to the contents of remunerations and imports of exports of goods and services in the 1994 input-output matrix). Thus, this aggregate cost indicator does not take into account developments in other costs associated with the productive process of a specific corporation.

Chart 3.5  
RELATIVE UNIT LABOUR COSTS IN  
MANUFACTURING<sup>(a)</sup>

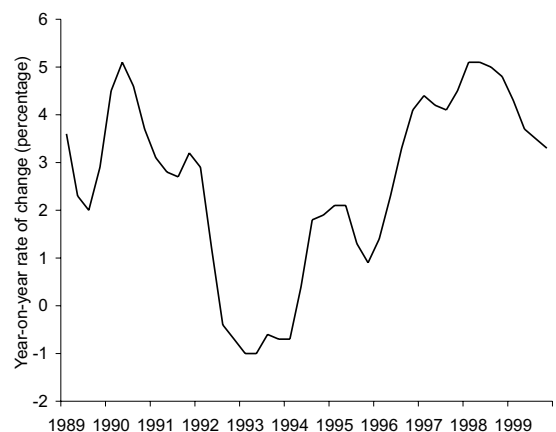


Sources: INE, Ministry of Labour and Solidarity, Banco de Portugal and IMF.

Note:

(a) ULC in Portugal in comparison with ULC abroad in manufacturing adjusted for exchange rate developments. A positive change denotes an increase in the relative costs of Portuguese exporters.

Chart 3.6  
COINCIDENT INDICATOR OF ACTIVITY



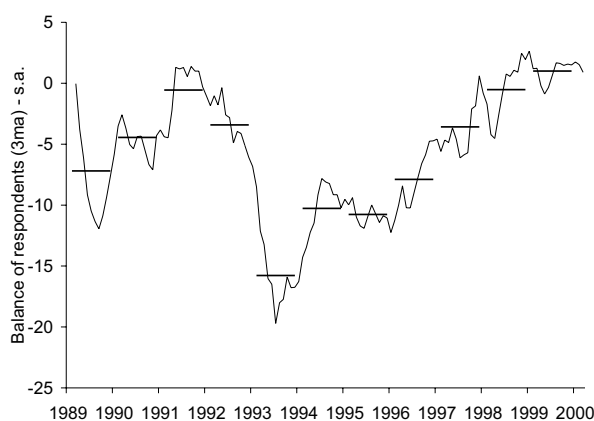
Imports of services showed a real change of -0.8 per cent in 1999, in contrast with the high growth observed in the previous year (10.0 per cent). Expenditure by Portuguese tourists abroad recorded a lower growth rate than in the previous year. In addition, there was a reduction in imports of other technical-professional services, which had recorded very high growth rates in the first half of 1998, associated with the preparation of "Expo98".

Chart 3.7

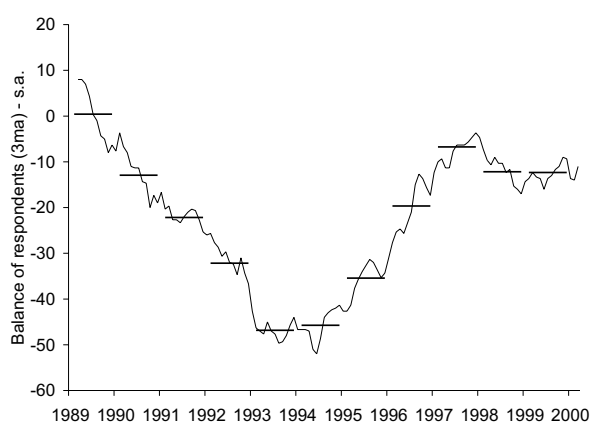
**INDUSTRIAL CONFIDENCE INDICATOR**



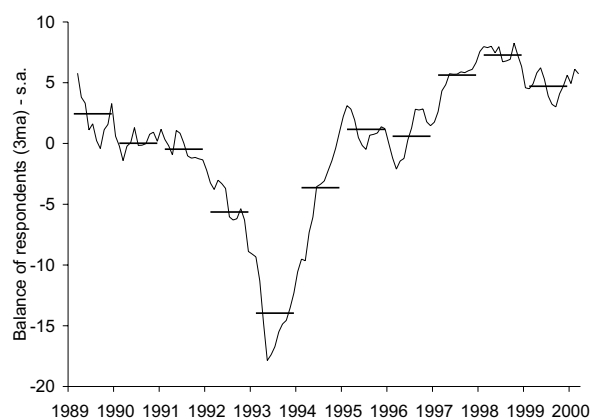
**RETAIL TRADE CONFIDENCE INDICATOR**



**CONSTRUCTION CONFIDENCE INDICATOR**



**WHOLESALE TRADE CONFIDENCE INDICATOR**



Sources: European Commission, INE, “Monthly Trade Survey” and Banco de Portugal.

The Banco de Portugal coincident indicator, whose purpose is to summarise trade, industry and construction activity developments, clearly points to a lower increase in economic activity in 1999 than in the course of 1998 (Chart 3.6). According to the Banco de Portugal estimates, this deceleration was the result of the behaviour of most activity sectors. The agriculture, forestry and fishing sector was an exception to the deceleration pattern, as it recorded a sharp recovery from 1998.

The industrial sector recorded the highest deceleration in Gross Value Added (GVA), in annual average, reflecting the slowdown in overall demand and, in particular, in external demand. Activity in this sector, however, showed different intra-annual developments: in the first half of the year, there was a further deceleration — continu-

ing the behaviour observed as from mid-1998 — while, in the second half, there was a recovery, supported by an improvement in the external demand for Portuguese industry. The industrial confidence indicator summarises these developments: although it has decreased, in annual average, it reveals an improvement from the first to the second half of the year (Chart 3.7).

The GVA in construction increased at a pace close to GDP growth in 1999, decelerating vis-à-vis the previous year. Confidence in this sector recorded a level similar to that in the previous year, in annual average, pointing to a recovery in activity in the last quarter of the year (Chart 3.7).

Activity in the services sector decelerated also, maintaining, however, a higher pace of growth than GDP. The deceleration was particularly pro-

nounced in the hotels and restaurants and transports sub-sectors, which had recorded a strong acceleration in 1998 related with "Expo98". The GVA of the trade sub-sector has also decelerated — reflecting a lower dynamism in domestic demand — maintaining, however, a considerable pace of growth, which contributed to the maintenance of high levels of confidence in retail and gross sales (Chart 3.7). Activity in the communications sub-sector activity continued to show a very significant pace of growth.

#### 4. EMPLOYMENT AND WAGES

Labour market variables continued to show a strong link to the cyclical developments of the economy in 1999. Thus, there was an increase in the labour force and in total and wage earners employees, and reductions in the unemployment rate and long-term unemployment, as a percentage of the total number of unemployed.

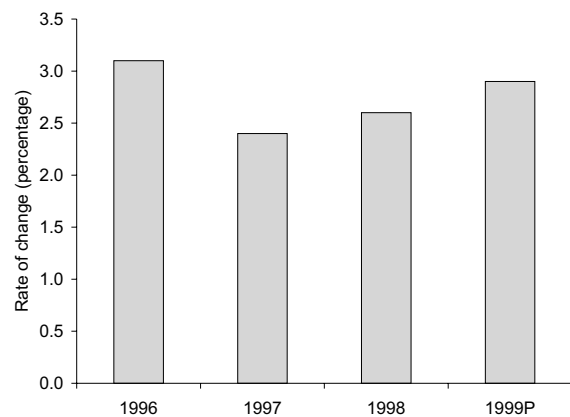
According to the Employment Survey of the INE, the change in total employment — measured by the number of jobs — was of 1.8 per cent in 1999 (2.3 per cent in 1998<sup>(20)</sup>). The number of wage earners and self-employed workers increased<sup>(21)</sup> (2.2 per cent and 0.9 per cent respectively, in accordance with the information available from the Employment Survey on the situation of the population in the previous quarter, on the basis of a constant sample<sup>(22)</sup>). Apparent labour productivity recorded a relatively small increase (1.2 per cent in 1999, compared with 1.9 per cent in the previous year), which resulted from several factors. On the one hand, as it would be expected, the slowdown in economic activity — and particularly, in the industrial sector — was not reflected in a similar deceleration in employment, given the usual adjustment lags of this variable. On the other hand, economic growth in 1999 seems to have been essentially supported by the most labour-intensive sectors, in particular, by the general gov-

(20) Employment changes in 1998 were based on evidence from the Employment Survey on the labour situation, one year before, of those surveyed.

(21) Includes self-employed workers, unpaid family workers and other.

(22) According to the Employment Survey, changes are of 3.3 per cent and -1.8 per cent for wage earners and self-employed respectively.

Chart 4.1  
DEVELOPMENTS IN REAL WAGES



Sources: INE, Ministry of Labour and Solidarity and Banco de Portugal.

Note: Change in the private sector nominal wages deflated by the private consumption deflator.

ernment. Finally, employment growth measured by the number of hours worked seems to have been less pronounced (0.7 per cent compared with the aforementioned figure of 1.8 per cent for the growth in the number of staff), given that in 1999 the trend to reduce working hours continued.

Employment growth brought about a reduction in unemployed population, as well as an increase in the activity rate. Considering only the population between 15 and 64 years of age, the activity rate increased by 0.5 p.p. in 1999 to 70.6 per cent. This figure compares with 67.1 per cent in the euro area.

The expansion of the Portuguese economy brought about a further reduction in the unemployment rate, which, according to INE's Employment Survey, stood at 4.4 per cent in 1999 (5.0 per cent in the previous year). The number of persons unemployed decreased by 10.6 per cent compared with 1998, and there was a reduction both in the number of unemployed seeking a new job (-7.8 per cent) and in the number of first-job seekers (-23.6 per cent). It should be noted that long-term unemployment decreased once again as a proportion of total unemployment.

According to the estimates of Banco de Portugal, the nominal rate of change in compensations per employee for the private sector stood at 5.5 per



cent in 1999, i.e. 0.3 p.p. below the figure for 1998. There were thus further significant increases in real wages (see Chart 4.1). Comparing the estimated nominal change in compensation per employee with the wages implicit in collective agreements (3.3 per cent, from 3.1 per cent in 1998), it can be seen that the impact of other factors on the evolution of compensations per employee (mostly wage increases above pay settlements and the effect of factors of a tax nature) remained relatively high in 1999 — 2.2 p.p. — albeit slightly below the 2.7 p.p. recorded in the previous year, in line with their pro-cyclical behaviour.

### 5. INFLATION

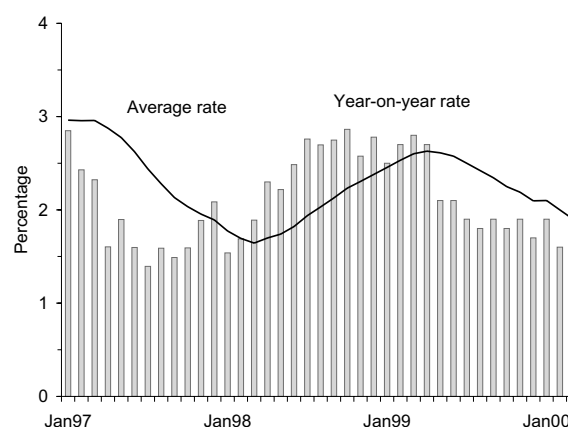
In March the inflation rate in Portugal, as measured by the year-on-year change of the HICP, decreased to 1.4 per cent<sup>(23)</sup>, after having remained relatively stable around 1.9 per cent from the beginning of the third quarter of 1999 up to January 2000 (Chart 5.1). At the end of the first quarter of 2000, the annual average HICP rate stood at 1.9 per cent, i.e. 0.3 p.p. below the figure recorded at the end of 1999. In this month the annual average change in the euro area HICP was 1.4 per cent.

Similarly to 1999, the deceleration in consumer prices in Portugal in the first quarter of 2000 contrasted with the increase in the year-on-year rate of change of the HICP in the euro area. These developments continued to be significantly influenced by the fact that Portugal did not raise fuel selling prices to the general public until the end of March<sup>(24)</sup>, whereas in the remaining euro area countries the rise in fuel prices has been the major factor behind the acceleration which has been witnessed in consumer prices for several months. In this context, in the first three months of 2000 the

(23) In January 2000 the HICP extended its coverage to all European Union member countries in terms of geography, population and goods. The index weights started to reflect consumption on the national territory, as well as expenditure by non-residents. In addition, the coverage of goods and services was also extended so as to include the whole consumer expenditure on education, health, social protection and other financial services. The new HICP series begin in December 1999. The impact of these changes on the average inflation rate in Portugal in 2000 is estimated at only 0.1 p.p.

(24) Changes in fuel prices, with effect from 30 March, did not influence the price index this month.

Chart 5.1  
HARMONIZED INDEX OF CONSUMER PRICES



Sources: Eurostat, INE and Banco de Portugal.

Note: The 1997 HICP figures were adjusted according to the indications of the box in the Annual Report 1998 entitled "Changes in the HICP: Estimate of the revision of the inflation levels for 1998".

annual inflation rate in Portugal was lower than the euro area average. In March this differential stood at -0.7 p.p., as a result of the difference between the increase of HICP in Portugal (1.4 per cent) and in the euro area (2.1 per cent).

From January 2000 onwards the year-on-year inflation trend indicator, the trimmed mean at 10 per cent<sup>(25)</sup>, stood above the annual change of the CPI (Chart 5.2). In fact, from December 1999 to March 2000, the year-on-year rate of change of the CPI decreased from 2.0 to 1.5 per cent, while the trimmed mean at 10 per cent increased from 2.0 per cent to 2.1 per cent. These developments in the trend measure of inflation suggest that the reduction of the inflation rate in the first quarter of 2000 was partly explained by the unusually favourable behaviour of some prices, in particular of certain foodstuffs. The high degree of negative skewness in the distribution of the year-on-year price rises from January 2000 onwards also indicates that extreme observations have likely concentrated below the average of this distribution.

The analysis of the HICP evolution by components shows that, although most HICP compo-

(25) Calculated at the Banco de Portugal on the basis of the CPI. On the calculation method of the trend inflation indicators regularly used by the Banco de Portugal, see C. Coimbra and P. D. Neves, (1997), "Trend inflation indicators", *Economic Bulletin of the Banco de Portugal*, Volume 3, No. 1, March 1997.

Chart 5.2  
TREND MEASURES  
Year-on-year rate of change



nents have contributed to the fall in the inflation rate in the first quarter of 2000, the inflation pattern was particularly influenced by the deceleration in some prices as a result of specific effects (Chart 5.3).

Thus, the year-on-year change of food prices continued to show the downward trend recorded since the second quarter of the previous year, standing at 0.4 per cent<sup>(26)</sup> in the first quarter of 2000, against 1.3 per cent in the fourth quarter of 1999 (a decline of 0.9 per cent in December to -0.3 per cent in March). This strong deceleration in food prices was favoured by the base effect related to the high increase in the prices of some unprocessed foodstuffs at the end of the first quarter of the previous year. Against this background, the trend of food prices was particularly influenced by the reduction of the year-on-year change of its unprocessed component, from 0.5 per cent in the fourth quarter of 1999 to -0.5 per cent in the first quarter of 2000 (from 0.0 per cent in December to -1.6 per cent in March). During the same period the year-on-year rate of change of processed food prices recorded, in turn, a less pronounced decrease from 2.1 per cent to 1.4 per cent (from 1.8 per cent in December to 1.1 per cent in March).

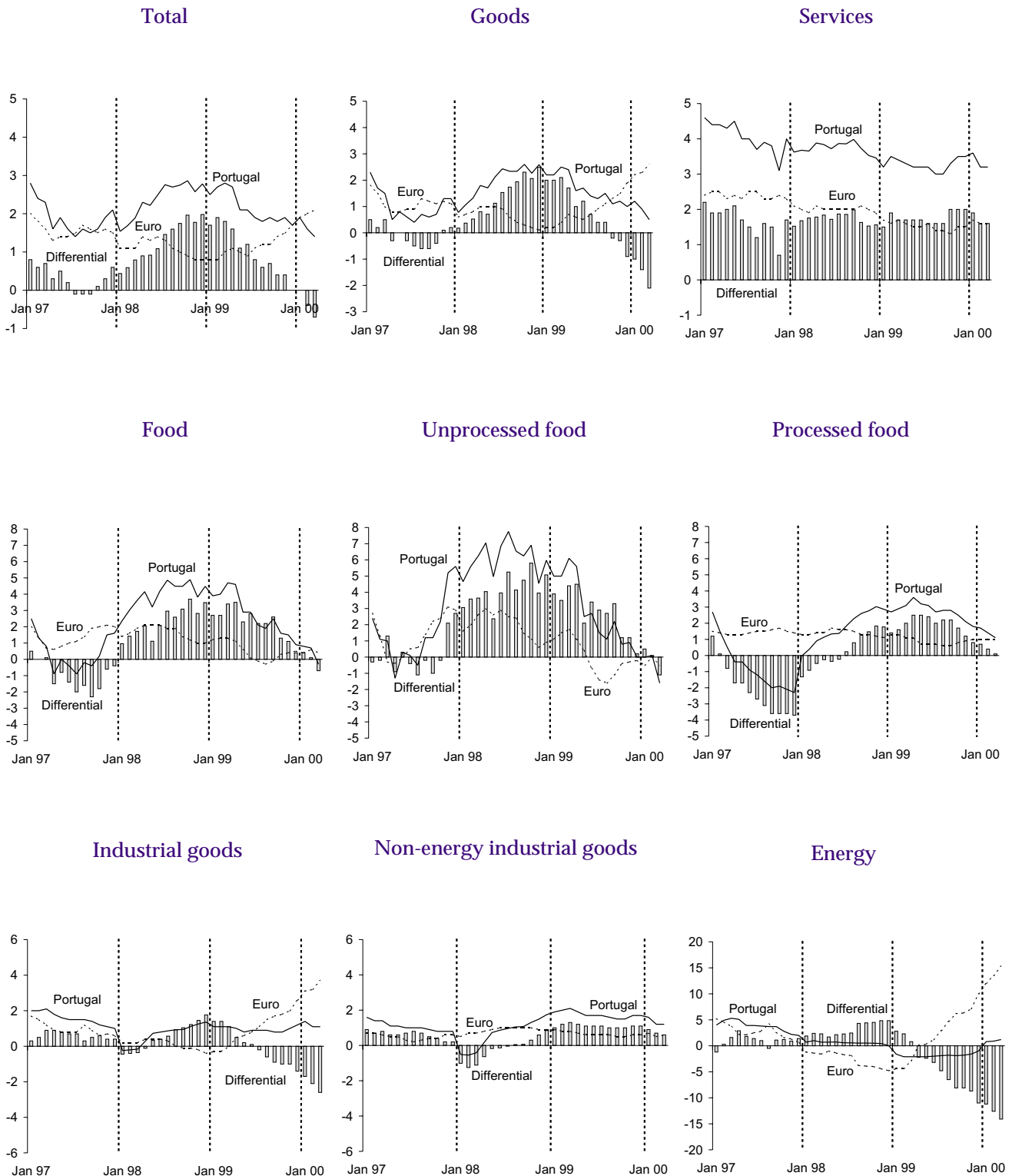
(26) The values of the HICP components for March correspond to estimates calculated by the Banco de Portugal.

As regards industrial goods, the year-on-year change of non-energy industrial goods decreased to 1.3 per cent in the first quarter of 2000 (against 1.7 per cent in the previous quarter). This largely reflected the fact that the effects of “sales and promotions” within the item “clothing and footwear” were stronger than in the corresponding period in 1999<sup>(27)</sup>. In contrast, the year-on-year change of energy prices in the same period increased by 2.4 p.p. to 1.0 per cent, after having remained negative throughout 1999. Against a background of unchanged fuel consumer prices, these developments especially reflected the base effect associated with the reduction of electricity prices in early 1999.

The year-on-year growth of services prices stood at 3.4 per cent in the first quarter of 2000. From December 1999 to March 2000, the year-on-year rate of change decreased from 3.5 per cent to 3.2 per cent. This reflected differentiated developments in the prices of some services. On the one hand, there was a deceleration in the prices of “telephone services” and “maintenance and repair of motor vehicles” and, on the other, an acceleration in the prices of “education services” and “accommodation services”. It should be noted that

(27) The year-on-year rate of change in “clothing and footwear” decreased from 1.0 per cent in December 1999 to -1.2 per cent in March 2000.

Chart 5.3  
**HARMONIZED INDEX OF CONSUMER PRICES - TOTAL AND AGGREGATES**  
 Year-on-year rates of change and differentials



Sources: Eurostat, INE and Banco de Portugal.

Note: The 1997 HICP figures were adjusted according to the indications of the box in the *Annual Report 1998* entitled "Changes in the HICP: Estimate of the revision of the inflation levels for 1998".

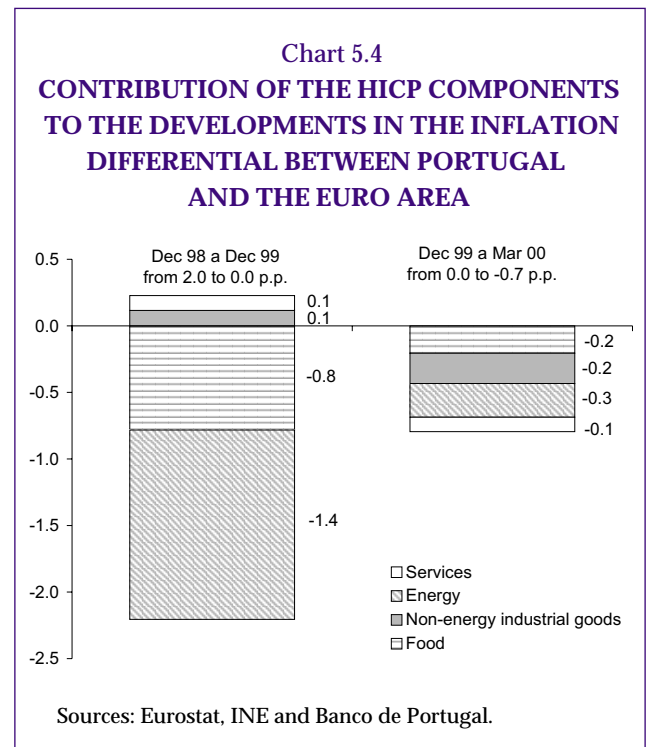


the reduction of telephone tariffs in January — 3.7 per cent compared with the previous month and 6.3 per cent against the corresponding period a year earlier (-2.8 per cent in December) — seems to have partly reflected the impact of the liberalisation measures introduced in the telecommunications sector in January 2000.

In the first quarter of 2000 the reduction of the inflation rate in Portugal, as measured by the HICP, occurred simultaneously to the continuation of the acceleration of this index in the euro area as a whole (from 1.7 per cent in December to 2.1 per cent in March). As a consequence, the differential between Portuguese and euro area inflation, which was nil in December 1999, increased to -0.7 p.p. in March 2000 (Chart 5.3). As already mentioned, similarly to what happened in 1999 the inflation differential continued to be influenced by the fact that in Portugal, up to the end of March, the reduction of the tax burden on fuels continued to offset the increase in the world market price of oil, conversely to the euro area, where the increase in fuel prices has been the main cause for the rise in inflation<sup>(28)</sup>.

From December 1999 to March 2000 the contributions from the various HICP components to the change in the inflation differential (-0.7 p.p.) were -0.3 p.p. for energy, -0.2 p.p. for both food and non-energy industrial goods and -0.1 p.p. for services (Chart 5.4). However, as regards the growth differential of energy prices, its narrowing resulted exclusively from differentiated developments in fuel prices.

At the end of March the Government decided to raise oil and diesel prices by around 11 per cent. The estimated direct effect of this rise on the month-on-month change in the HICP for April will amount to 0.4 and 0.5 p.p. Other direct second-round effects will also result from the announced rises in transport and gas prices, whose impact on the HICP will probably stand between 0.1 and 0.2 p.p. In addition, the rise in fuel



prices will also likely tend to generate other indirect effects, difficult to quantify and resulting from the use of oil in the production of other goods and services. These indirect effects on inflation will depend, *inter alia*, on the wage response and on the ability of producers to pass on to consumers the cost increases resulting from the rise in oil prices.

The analysis of the main factors explaining inflation also points to less favourable external conditions for 2000 as a whole, in comparison with the previous year.

Oil prices have increased during 1999, thus reversing the sharp fall recorded in 1997-1998. However, recent data on spot and future oil prices point to a decline in the oil price from March onwards, which seems to have become steeper with the increase in production, agreed upon in the OPEC meeting held on the 28th March. As regards non-oil commodity prices, according to the information available up to the end of the first quarter of 2000, there was an acceleration from the Spring 1999 onwards, albeit far less sharp than that in the oil price and more marked for non-food commodities. In the wake of these events and of the effects of the exchange rate appreciation of the US dollar, import prices in euro accelerated from the second quarter of 1999 onwards.

In fact, according to the Directorate General of Economic and International Relations, the year-

(28) Conversely to the situation in Portugal, oil price changes have had a significant direct impact on the trend of fuel prices and, as a consequence, on the HICPs of the remaining euro area countries. Thus, given the fall in oil prices in 1998 and their subsequent rise in 1999, these differentiated developments in fuel prices partly explained the widening of the differential between Portuguese and euro area inflation in 1998 and, particularly, its subsequent narrowing in 1999.

on-year change of import prices denominated in PTE stood at -6.3 per cent in the first quarter of 1999, -4.4 per cent in the cumulative period January-June and -2.3 per cent up to September, especially on account of the developments in fuel prices (a fall of 23.9 per cent in the first quarter and of 10.0 per cent up to June, and a rise of 9.0 per cent up to September). In addition, there was also an increase in the year-on-year change of import prices of intermediate goods and also of consumer goods, albeit smaller (from -10.5 per cent and -1.7 per cent in the first quarter, to -7.0 per cent and 0.1 per cent up to September respectively).

This trend of import prices does not seem to have had a significant impact on consumer prices in 1999, and its effects will likely occur especially throughout 2000. This results, on the one hand, from the offsetting of the direct effect of the rise in oil prices on fuel prices paid by the consumers, up to the end of March 2000, and on the other hand, from the existence of lags in the transmission of import price changes to domestic prices. Similarly, the recent increase in fuel prices and the probable adjustment of the unusually favourable price rise of certain goods will tend to exert upward pressure on the year-on-year inflation rate in the course of 2000. However, these effects will be cushioned by the domestic conditions of inflation, which are likely to develop more favourably than in 1999, given the expected deceleration of wages and private consumption.

## 6. BALANCE OF PAYMENTS AND INTERNATIONAL INVESTMENT POSITION

In 1999 the aggregate current and capital accounts deficit increased to 6.6 per cent of GDP (compared with 4.8 per cent in 1998<sup>(29)</sup>) (Table 6.1). This deficit was higher than the one forecast in the December issue of the *Economic Bulletin*, as the current data shows a wider deficit for the income and goods accounts. The further increase in the financing needs of the Portuguese economy vis-à-vis other countries continued to reflect the widening of the differential between saving and investment of the private non-financial sector. The financing of the current and capital accounts deficit implied a further increase in external borrow-

ing of the monetary financial sector and the general government.

The current account deficit reached 8.8 per cent of GDP in 1999 (7.0 per cent of GDP in 1998). The rise in the deficit resulted essentially from the substantial widening of the goods deficit — from 11.0 per cent of GDP in 1998 to 12.5 per cent of GDP in 1999 — given that imports continued to show a nominal growth higher than that of exports, in line with the growth differential of domestic demand in Portugal and abroad<sup>(30)</sup>. In addition, there was a reduction in the services and current transfers surpluses of around 0.2 p.p. of GDP for both cases. The income account, as a percentage of GDP, recorded a deficit similar to the one observed in the previous year (1.2 per cent of GDP).

The services surplus decreased from 1.6 per cent to 1.4 per cent of GDP, accounted for by the reduction in the tourism surplus and by a rise in the transport services deficit. The surplus of travel and tourism fell from 2.7 per cent of GDP in 1998 to 2.5 per cent of GDP in 1999. Nominal tourism receipts increased by 1.0 per cent in 1999, strongly decelerating from the previous year (an increase of 17.3 per cent, as a result of Expo98). Portuguese travel and tourism expenditure abroad also slowed down significantly from 1998. The transport services deficit rose to 0.5 per cent of GDP (0.3 per cent of GDP in 1998), largely as a reflection of the higher deficit of passenger air transport services. It should also be noted that the deficit of “other business services”, essentially composed by professional and technical services, declined to 0.2 per cent of GDP (0.4 per cent of GDP in 1998).

Current transfers decreased from 3.7 per cent to 3.5 per cent of GDP in 1999. This reflected the behaviour of official transfers, mostly from the European Union, which decreased from 0.7 per cent to 0.5 per cent of GDP. As regards private transfers, the surplus remained at 3.0 per cent of GDP and the balance on emigrants’ remittances declined to 2.8 per cent of GDP (2.9 per cent of GDP in 1998).

---

(29) The aggregate current and capital accounts deficit in 1998 was revised upwards from 4.3 per cent to 4.8 per cent of GDP. This revision chiefly reflects a wider income account deficit (revised from 0.5 per cent to 1.2 per cent of GDP), due to the incorporation of new data. However, there were also revisions at the level of the goods and capital transfers balances.

(30) For a more detailed analysis of trade in goods, see section 3.

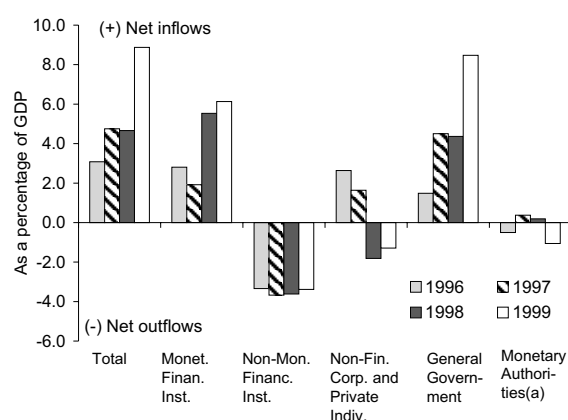
Table 6.1

## BALANCE OF PAYMENTS – On a transaction basis

EUR million

	1997	1998		1999			Balance as a % of GDP			
	Balance	Debit	Credit	Balance	Debit	Credit	Balance	1997	1998	1999
<b>Current account</b> .....	<b>-5 309.9</b>	<b>47 912.0</b>	<b>40 858.1</b>	<b>-7 053.8</b>	<b>51 263.1</b>	<b>41 889.9</b>	<b>-9 373.2</b>	<b>-5.7</b>	<b>-7.0</b>	<b>-8.8</b>
Goods .....	-8 782.4	34 229.6	23 130.5	-11 099.1	37 405.9	24 081.1	-13 324.8	-9.5	-11.0	-12.5
Services .....	1 269.0	6 203.3	7 769.4	1 566.1	6 371.3	7 881.6	1 510.3	1.4	1.6	1.4
Transport .....	-309.1	1 722.6	1 436.0	-286.6	1 917.8	1 360.1	-557.7	-0.3	-0.3	-0.5
Travel .....	2 244.8	2 084.5	4 766.7	2 682.2	2 125.7	4 813.8	2 688.1	2.4	2.7	2.5
Insurance services .....	-37.9	84.6	72.7	-11.9	96.7	64.9	-31.7	0.0	0.0	0.0
Royalties and license fees .....	-227.5	272.2	38.2	-234.0	273.1	25.2	-247.9	-0.2	-0.2	-0.2
Other services .....	-246.6	1 787.5	1 371.3	-416.2	1 787.5	1 529.7	-180.6	-0.3	-0.4	-0.2
Government services .....	-154.8	252.0	84.5	-167.5	247.7	87.8	-159.9	-0.2	-0.2	-0.1
Income .....	-1 111.0	5 611.6	4 420.8	-1 190.7	5 477.4	4 218.5	-1 258.9	-1.2	-1.2	-1.2
Compensation of employees .....	25.0	84.1	153.5	69.4	118.4	129.4	11.0	0.0	0.1	0.0
Investment income .....	-1 136.0	5 527.5	4 267.3	-1 260.2	5 359.0	4 089.1	-1 269.9	-1.2	-1.3	-1.2
Current transfers .....	3 314.4	1 867.5	5 537.4	3 669.9	2 008.5	5 708.7	3 700.2	3.6	3.7	3.5
Official transfers .....	423.0	1 305.8	1 987.1	681.2	1 409.7	1 936.8	527.2	0.5	0.7	0.5
Private transfers .....	2 891.4	561.6	3 550.3	2 988.7	598.8	3 771.9	3 173.0	3.1	3.0	3.0
<b>Capital account</b> .....	<b>2 327.1</b>	<b>161.4</b>	<b>2 408.1</b>	<b>2 246.8</b>	<b>178.7</b>	<b>2 481.7</b>	<b>2 303.1</b>	<b>2.5</b>	<b>2.2</b>	<b>2.2</b>
Capital transfers .....	2 307.5	130.4	2 363.8	2 233.4	130.4	2 442.2	2 311.8	2.5	2.2	2.2
Official transfers .....	2 285.1	16.8	2 228.3	2 211.5	8.1	2 305.3	2 297.2	2.5	2.2	2.1
Private transfers .....	22.4	113.6	135.5	21.9	122.3	136.9	14.6	0.0	0.0	0.0
Aquisition/disposal of non-produced non-financial assets .....	19.6	31.0	44.3	13.4	48.3	39.6	-8.7	0.0	0.0	0.0
<b>Financial account</b> .....	<b>4 392.9</b>	<b>356 132.7</b>	<b>360 816.7</b>	<b>4 684.0</b>	<b>730 451.8</b>	<b>739 934.4</b>	<b>9 482.6</b>	<b>4.8</b>	<b>4.7</b>	<b>8.9</b>
Direct investment .....	518.7	16 767.8	16 749.3	-18.6	18 393.9	16 364.8	-2 029.1	0.6	0.0	-1.9
Portuguese investment abroad .....	-1 471.0	7 928.2	5 364.5	-2 563.7	7 342.5	4 794.8	-2 547.7	-1.6	-2.6	-2.4
Foreign investment in Portugal .....	1 989.7	8 839.6	11 384.8	2 545.1	11 051.4	11 570.0	518.6	2.2	2.5	0.5
Portfolio investment .....	471.7	166 902.2	166 151.0	-751.2	178 364.1	185 663.5	7 299.4	0.5	-0.7	6.8
Assets .....	-6 585.0	109 512.0	104 142.1	-5 369.9	107 806.2	103 633.1	-4 173.1	-7.1	-5.3	-3.9
Liabilities .....	7 056.8	57 390.3	62 009.0	4 618.7	70 557.9	82 030.4	11 472.5	7.6	4.6	10.7
Financial derivatives .....	-19.8	876.5	991.7	115.2	2 349.3	2 538.4	189.1	0.0	0.1	0.2
Other investment .....	4 519.9	168 544.4	174 361.4	5 817.1	491 185.1	495 498.1	4 313.0	4.9	5.8	4.0
Assets .....	-5 816.7	106 336.5	99 608.6	-6 727.9	404 248.3	402 191.6	-2 056.7	-6.3	-6.7	-1.9
Liabilities .....	10 336.5	62 207.9	74 752.8	12 545.0	86 936.8	93 306.5	6 369.7	11.2	12.5	6.0
Reserve assets .....	-1 097.6	3 041.8	2 563.3	-478.5	40 159.4	39 869.7	-289.7	-1.2	-0.5	-0.3
Monetary gold .....	-0.4	993.8	0.1	-993.7	1.0	144.6	143.6	0.0	-1.0	0.1
Special drawing rights .....	-16.1	23.2	0.4	-22.8	50.9	128.0	77.1	0.0	0.0	0.1
Reserve position in the IMF .....	7.2	165.9	5.0	-160.9	587.8	741.5	153.7	0.0	-0.2	0.1
Foreign exchange .....	-1 088.3	1 858.8	2 557.8	699.0	39 519.7	38 855.5	-664.2	-1.2	0.7	-0.6
<b>Errors and omissions</b> .....	<b>-1 410.0</b>			<b>123.0</b>			<b>-2 412.5</b>	<b>-1.5</b>	<b>0.1</b>	<b>-2.3</b>
Memo:										
<b>Current Account+ Capital Account</b> .....	<b>-2 982.9</b>	<b>48 073.3</b>	<b>43 266.3</b>	<b>-4 807.1</b>	<b>51 441.7</b>	<b>44 371.6</b>	<b>-7 070.1</b>	<b>-3.2</b>	<b>-4.8</b>	<b>-6.6</b>

Chart 6.1  
FINANCIAL ACCOUNT  
Balances



Note: Includes international payments by resident monetary financial institutions through the TARGET system from January 1999 onwards.

In 1999 the income account, as a percentage of GDP, recorded a deficit similar to the one observed in the previous year (1.2 per cent of GDP). However, the deficit of investment income<sup>(31)</sup> declined slightly, from 1.3 per cent to 1.2 per cent of GDP. This decline was accounted for by the reduction of the deficit of portfolio investment income (from 0.6 to 0.2 per cent of GDP), since receipts from abroad increased sharply. By contrast, the deficit of income of other investment widened further (from 0.2 per cent to 0.5 per cent of GDP), in line with the increase recorded in recent years in banks' net external liabilities, especially in the form of loans and deposits.

In 1999 the capital account surplus remained unchanged, as a percentage of GDP, at 2.2 per cent, as a result of the maintenance of the balance on capital transfers with the European Union.

In 1999 the financial account recorded a net inflow equivalent to 8.9 per cent of GDP, which

(31) Due to the change in the Reserve Assets concept, arising from Portugal's participation in EMU, part of the securities portfolio of the Banco de Portugal started to be considered Portfolio Investment Assets instead of Reserve Assets. This reformulation also affects the breakdown of investment income, since income from these securities is recorded, from 1999 onwards, as Portfolio Investment Income, instead of Other Investment Income - Other Income.

was much higher than in the previous year (4.7 per cent of GDP). The financing of the wider aggregate current and capital accounts deficit seems to have been facilitated by the new financing opportunities arising from Portugal's participation in a wide single-currency financial market, in the wake of Stage Three of EMU. The general government was the institutional sector whose external debt recorded the highest growth, in net terms, in 1999: financial operations involving this sector and foreign countries originated an inflow of 8.5 per cent of GDP, against 4.4 per cent of GDP in 1998 (Chart 6.1). These inflows were essentially caused by the sale of public debt bonds of the Portuguese Government to non-residents. Strong inflows were also made through resident monetary financial institutions (equivalent to 6.1 per cent of GDP, compared with 5.5 per cent of GDP in 1998), mainly in the form of external loans and deposits. Conversely, external financial operations of the remaining resident institutional sectors gave rise to net outflows in 1999, similarly to 1998 (5.7 per cent and 5.2 per cent respectively).

In an analysis by type of investment, it can be seen that the increase in financial inflows was mostly a result of portfolio investment operations between Portugal and abroad. These operations recorded a surplus of 6.8 per cent of GDP, in contrast to a deficit of 0.7 per cent of GDP in 1998 (Table 6.1). On the one hand, non-residents invested in domestic securities much more than in 1998 (10.7 per cent and 4.6 per cent of GDP, in net terms, respectively). In particular, as mentioned above, purchases of public debt bonds by non-residents increased substantially in 1999 to 8.1 per cent of GDP, in net terms (4.7 per cent of GDP in 1998). The strong increase in investments by non-residents within this segment may be partly related to the sharp reduction in the stock of public debt securities held by resident monetary financial institutions. In 1999 non-residents also showed interest in money market instruments — issued by monetary financial institutions and by the general government — and in long-term debt securities issued by non-financial corporations. With respect to Portuguese portfolio investment abroad, net investments were lower than in 1998 (3.9 per cent and 5.3 per cent of GDP respectively). This reduction in investments is explained by a decline in the purchase of debt securities (2.5 per cent in 1999,

compared with 4.7 per cent in 1998). Within the equity securities segment, resident investors increased their acquisitions abroad (1.4 per cent and 0.6 per cent of GDP in 1999 and 1998 respectively). This increase in external investments in equity securities may be linked to the better behaviour of the main stock markets vis-à-vis the national market. Portuguese portfolio investment operations abroad continued to be mainly undertaken by investment trusts, insurance corporations and pension funds.

Operations between residents and non-residents recorded in the “other investment” account also contributed to financial inflows in 1999, albeit less than in the previous year. These operations — which comprise trade credits and unsecured loans/deposits — amounted to 4.0 per cent of GDP (5.8 per cent of GDP in 1998). Due to their nature, most of these operations were directly executed by resident monetary financial institutions, giving rise to financial inflows equivalent to 6.9 per cent of GDP (7.7 per cent of GDP in the previous year). These institutions thus continued to use external funds to finance the resident private sector. Operations carried out within the scope of the TARGET system<sup>(32)</sup> translated into a net capital outflow of 0.6 per cent of GDP in 1999. Finally, operations included in the “other investment” account made by non-financial corporations and private individuals resulted in a net financial outflow of 1.7 per cent of GDP, i.e. lower than the one recorded in 1998 (2.6 per cent of GDP).

The deficit in direct investment operations was equivalent to 1.9 per cent of GDP, which compares to a virtually null balance in the previous year. In net terms, Portuguese direct investment abroad was similar to that of the previous year (2.4 per cent and 2.6 per cent of GDP respectively). This type of internationalisation continued to be favoured by Portuguese companies, in particular, by those from the sectors “production and distribution of electricity, gas and water” and of “transport, storage and communications”. By contrast, foreign direct investment in Portugal declined sharply compared with 1998 (from 2.5 per cent to

0.5 per cent of GDP). Most direct investment operations in Portugal continued to be directed to holding companies of several economic groups. Mention should also be made of the “wholesale and retail trade” sector, as well as of the “transport, storage and communications” sector, on account of the amounts received of foreign direct investment this year.

The net debtor position of the Portuguese economy — assessed by the international investment position statistics<sup>(33)</sup> — continued to rise in 1999, similarly to recent years. At the end of 1999 this position corresponded to 26.6 per cent of GDP, compared with 18.5 per cent of GDP at the end of December 1998 (Table 6.2).

An analysis of the recent developments in the external assets and liabilities of the Portuguese economy, broken down by the various operational types of investment included in the balance of payments, reveals that direct investment operations presented a net debtor position equivalent to 10.2 per cent of GDP at the end of 1999 (11.3 per cent of GDP at the end of 1998). This position has been improving due to the strong growth of Portuguese direct investment abroad in recent years. With regard to portfolio investment, it should be noted that the stock of securities held by non-residents continued to increase throughout 1999, reaching 51.1 per cent of GDP at the end of the year (39.2 per cent of GDP at the end of 1998). This trend resulted largely from the increase in the stock of public debt securities held by non-residents, from 18.3 per cent to 25.0 per cent of GDP. In turn, developments in the “other investment” positions reflected largely the increase in net external liabilities of resident monetary financial institutions from 10.7 per cent to 17.0 per cent of GDP in 1999, which thus continued to finance the expansion of credit to the private non-financial sector. Net liabilities in the form of short-term

(32) In accordance with the indications of the European Central Bank, operations executed by resident monetary financial institutions within the framework of the TARGET system are recorded in the Balance of Payments as a change in assets of Monetary Authorities under the item “other investment”.

(33) The IIP statistics consist of a balance sheet of all external financial assets and liabilities of an economy, at a given point in time. Please refer to the Introductory Note of the December 1999 issue of the *Statistical Bulletin*. Note that, from January 1999 onwards, only Monetary Authorities' claims on euro area non-residents denominated in non-euro area currencies are recorded as Reserve Assets. Hence, there is a break in the series from this date onwards. The remaining Monetary Authorities' claims are now recorded as Portfolio Investment assets or Other Investment assets, which implies that there are also breaks in the series in these items in 1999.

Table 6.2

**INTERNATIONAL INVESTMENT POSITION – End-of-period positions**

	EUR million				As a percentage of GDP			
	1996	1997	1998	1999	1996	1997	1998	1999
<b>I. International Investment Position</b> . . . . .	<b>-6 534.3</b>	<b>-13 935.2</b>	<b>-18 546.9</b>	<b>-28 473.2</b>	<b>-7.6</b>	<b>-15.1</b>	<b>-18.5</b>	<b>-26.6</b>
<b>Direct investment<sup>(a)</sup></b>								
<b>Total</b> . . . . .	<b>-11 278.5</b>	<b>-11 650.3</b>	<b>-11 334.6</b>	<b>-10 858.0</b>	<b>-13.1</b>	<b>-12.6</b>	<b>-11.3</b>	<b>-10.2</b>
Portuguese investment abroad . . . . .	3 500.6	5 094.6	7 903.3	9 560.6	4.1	5.5	7.9	8.9
Foreign investment in Portugal . . . . .	14 779.1	16 745.0	19 237.9	20 418.6	17.1	18.1	19.1	19.1
<b>Portfolio investment</b>								
<b>Total</b> . . . . .	<b>-3 658.6</b>	<b>-14 620.2</b>	<b>-14 323.2</b>	<b>-15 162.5</b>	<b>-4.2</b>	<b>-15.8</b>	<b>-14.3</b>	<b>-14.2</b>
<b>Assets<sup>(c)</sup></b> . . . . .	<b>13 302.9</b>	<b>18 398.4</b>	<b>25 122.0</b>	<b>39 406.0</b>	<b>15.4</b>	<b>19.9</b>	<b>25.0</b>	<b>36.9</b>
Monetary Authorities <sup>(b)</sup> . . . . .	-	-	-	6 018.8	-	-	-	5.6
<b>Liabilities</b> . . . . .	<b>16 961.6</b>	<b>33 018.5</b>	<b>39 445.2</b>	<b>54 568.5</b>	<b>19.6</b>	<b>35.7</b>	<b>39.2</b>	<b>51.1</b>
<b>Other investment<sup>(d)</sup></b>								
<b>Total</b> . . . . .	<b>-8 909.3</b>	<b>-6 620.9</b>	<b>-11 652.8</b>	<b>-16 708.8</b>	<b>-10.3</b>	<b>-7.2</b>	<b>-11.6</b>	<b>-15.6</b>
<b>Assets</b> . . . . .	<b>31 764.1</b>	<b>46 748.8</b>	<b>52 947.2</b>	<b>58 427.8</b>	<b>36.8</b>	<b>50.6</b>	<b>52.7</b>	<b>54.7</b>
Monetary Authorities <sup>(b)</sup> . . . . .	36.4	25.5	109.5	2 147.5	0.0	0.0	0.1	2.0
<b>Liabilities</b> . . . . .	<b>40 673.4</b>	<b>53 369.7</b>	<b>64 599.9</b>	<b>75 136.7</b>	<b>47.1</b>	<b>57.7</b>	<b>64.3</b>	<b>70.3</b>
<b>Financial derivatives<sup>(e)</sup></b> . . . . .	<b>343.4</b>	<b>363.1</b>	<b>247.9</b>	<b>221.0</b>	<b>0.4</b>	<b>0.4</b>	<b>0.2</b>	<b>0.2</b>
<b>Reserve assets<sup>(b)</sup></b> . . . . .	<b>16 968.8</b>	<b>18 593.1</b>	<b>18 515.7</b>	<b>14 035.1</b>	<b>19.6</b>	<b>20.1</b>	<b>18.4</b>	<b>13.1</b>

Notes:

- (a) Includes quarterly estimates calculated by Banco de Portugal based on the accumulation of monthly flows and on the available annual figures obtained from the Direct Investment Surveys.
- (b) From January 1999 onwards, Reserve Assets include only Monetary Authorities' claims on euro area non-residents denominated in non-euro area currencies. Hence, there is a break in the series from this date onwards. The remaining Monetary Authorities' claims are recorded as Portfolio Investment assets or Other Investment assets, which implies that there are also breaks in the series in these items from January 1999 onwards.
- (c) Includes quarterly estimates calculated by Banco de Portugal based on the accumulation of monthly flows and on the available annual figures obtained from the "Survey on stocks of foreign securities held by residents".
- (d) Some components include quarterly estimates calculated by Banco de Portugal on the basis of the accumulation of monthly flows.
- (e) Net figures.

loans and deposits increased from 12.2 per cent to 15.2 per cent of GDP, whereas at the level of long-term operations, the net creditor position of 1.6 per cent turned to a net debtor position of 1.8 per cent of GDP in 1999. It should therefore be noted that in 1999 resident banks attracted external resources through both short- and long-term loans and deposits, in opposition to previous years, in which short-term operations were clearly dominant.

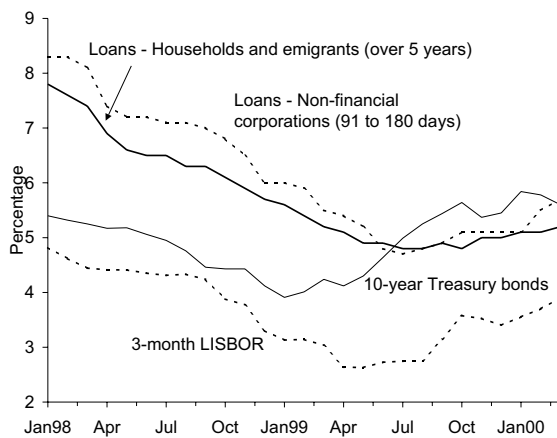
## 7. INTEREST RATES AND CREDIT

In the first two months of 2000 the growth rates of bank credit remained quite high, both for credit to non-financial corporations and to households. The slight deceleration in total credit reflects the decline in the growth rate of loans to households. This credit trend occurs against the background of gradual increases in bank's interest rates.

In the first quarter of 2000 bank (lending and deposit) interest rates continued to follow the upward trend initiated in mid-1999, mirroring the expectations (subsequently confirmed) of a rise in the Eurosystem's interest rates (Chart 7.1). In March the rate on time deposits (181 days to 1 year) was fixed at 2.6 per cent (against 2.4 per cent in December 1999 and 2.2 per cent, a record mini-



Chart 7.1  
MONEY MARKET, CAPITAL MARKET  
AND BANK CREDIT INTEREST RATES



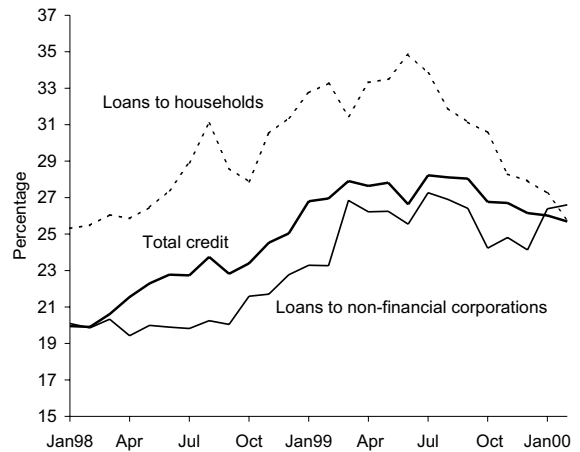
imum observed in June-August 1999). The rate on loans to non-financial corporations was fixed at 5.7 per cent (91 to 180-day operations) and 5.1 per cent (181-day to 1-year operations), with increases of 1.0 and 0.8 p.p. respectively, compared with the minimum levels recorded in July-August 1999. In turn, the rate on loans to households with a maturity of over 5 years was fixed at 5.2 per cent (raising the cumulative increase to 0.4 p.p. against the minimum level for 1999, recorded in July, August and October).

Considering that the adjustment of bank interest rates to the changes in the Eurosystem's intervention rates is not immediate, it might be assumed that the current levels of interest rates have not yet totally incorporated the recent changes in the intervention rates. Thus, it is natural that bank's interest rates continue to rise, irrespective of future rises in the ECB's intervention rates. It should be noted that from April 1999 to April 2000 the ECB's intervention rates were raised by 1.25 p.p., while bank interest rates were raised by approximately 0.1 p.p.<sup>(34)</sup> between April 1999 and March 2000.

In February 2000 domestic bank credit to the resident non-monetary sector (excluding general government) recorded a year-on-year rate of change of 25.7 per cent, down from 26.2 per cent at the end of 1999 (and 28.2 per cent in July 1999 — a

(34) Average rises in bank (lending and deposit) interest rates from the minimum levels recorded in 1999 were of 0.7 p.p.

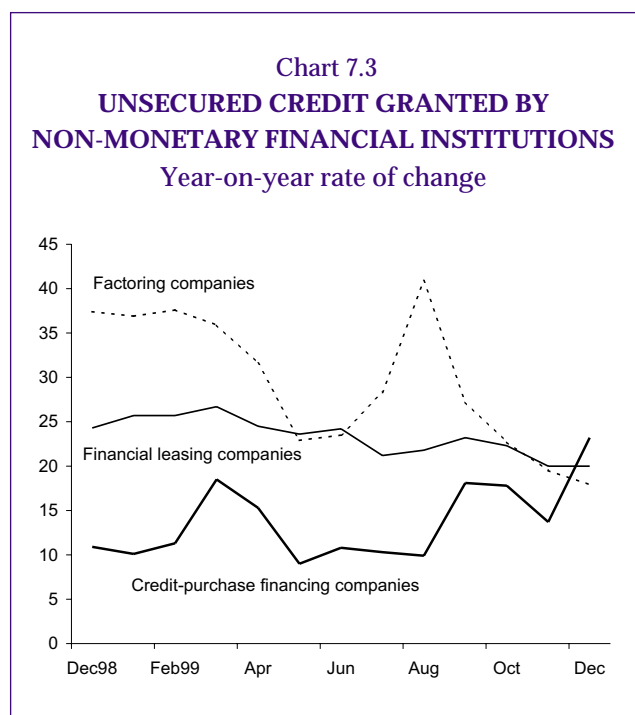
Chart 7.2  
DOMESTIC BANK CREDIT TO THE  
NON-MONETARY RESIDENT SECTOR  
(EXCLUDING GENERAL GOVERNMENT)  
Year-on-year rates of change



Note: The non-monetary resident sector (excluding general government) comprises households, non-financial corporations and non-monetary financial institutions.

record high in recent years). The deceleration in total credit was a result of the progressive reduction in the growth rate of loans to households (Chart 7.2). As from June 1999 this rate declined by 9.1 p.p., to 25.8 per cent in February 2000. In this month, lending for house purchase recorded a rate of change of 26.8 per cent, compared with the corresponding period in 1999, while lending to other purposes increased by 23.1 per cent.

Conversely to loans to households, there was an acceleration in loans to non-financial corporations in early 2000. In February 2000 loans to non-financial corporations recorded a year-on-year rate of change of 26.6 per cent (24.1 per cent in December 1999). This trend reflects a strong increase in credit in the first two months of this year, in contrast to the reduced growth observed in the early months of the previous years. In addition, it should be noted that the strong expansion of loans to non-financial corporations was broadly based across the different sectors of activity. In February 2000 the highest growth rates were recorded in services and construction (31.4 per cent and 43.3 per cent respectively), while loans to manufacturing (which accelerated in early 2000) recorded a year-on-year rate of change of 21.3 per cent in

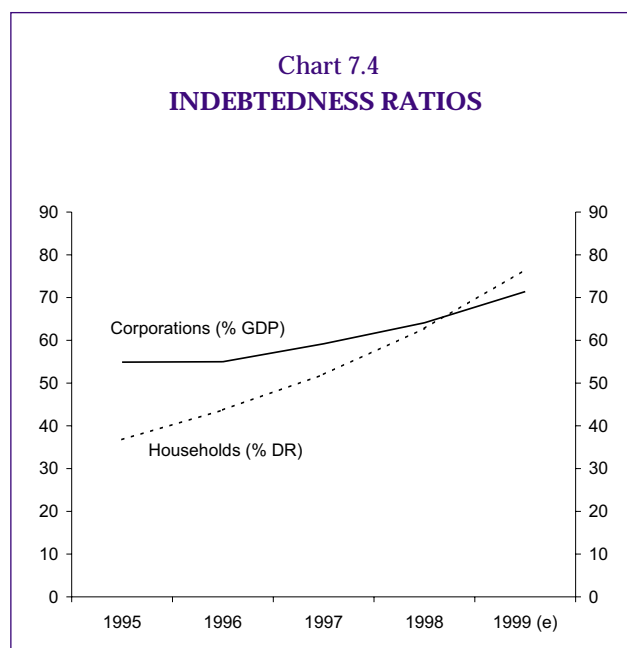


February. Although loans to non-financial corporations tend to follow the business cycle with some lag, the recently observed growth rates have clearly outpaced those recorded at a similar point in the previous business cycle.

Loans to non-monetary financial corporations recorded a growth rate of 22.0 per cent in February (27.2 per cent in December 1999). This strong growth is linked to the increase in credit granted by these institutions to the non-financial sector of the economy (non-financial corporations and households)<sup>(35)</sup>. At the end of 1999 (unsecured) credit granted by financial leasing companies, credit-purchase financing companies and factoring companies recorded year-on-year rates of change of 20.0 per cent, 23.2 per cent and 17.9 per cent respectively (Chart 7.3).

The persistence of the high growth rates of lending to the non-monetary sector of the economy has translated into an increase in its indebtedness ratio (relative to disposable income or to gross domestic product). According to the latest estimates of the Banco de Portugal, at the end of 1999 household indebtedness accounted for about

(35) With regard to the importance of this credit aggregate, it should be noted that at the end of 1998 the ratio of the total amount of unsecured credit granted by non-MFI to the credit granted by monetary institutions to the non-financial resident sector (excluding central government) was of approximately 9 per cent.



76.5 per cent of the disposable household income (with an increase of 13.7 p.p. from 1998). Indebtedness of non-financial corporations stood at about 71.4 per cent of GDP (7.3 p.p. up from 1998) (Chart 7.4).

The impact of the current upward trend of interest rates on each economic agent will depend on its net position vis-à-vis the banking system (positive for savers and negative for debtors). However, for net debtors, the current upward trend of interest rates will tend to translate into an increase in the degree of effort, i.e. into an increase in the debt servicing, as a percentage of the disposable income. This predictable increase in the degree of effort will be more marked than in the 90s, when the increase in indebtedness was matched by a reduction in the level of bank interest rates.

The persistence of high growth rates of lending to the non-monetary sector of the economy, together with the decline in the households' savings rate, has also implied an increase in the foreign indebtedness of the banking system. In fact, the increase in banks' assets as a result of the expansion of the credit granted has been, to a large extent, financed through an increase in net external liabilities (see Table 7.1). It should nevertheless be noted that there is a significant concentration of these liabilities in the euro area, and hence there is no problem involving exchange rate risk. In 1998, 1999 and in the first three months of 2000, the change in the net external position of banks was



Table 7.1

**CONSOLIDATED BALANCE SHEET OF  
MONETARY FINANCIAL INSTITUTIONS**  
End-of-month balances

EUR million	1998	1999	Change
	Dec	Dec	
Net external assets .....	15 024	9 148	-5 876
Banco de Portugal .....	16 770	18 623	1 852
Other monetary financial institutions .....	-1 746	-9 474	-7 728
of which:			
denominated in euro ....	-2 271	-10 560	-8 289
Loans to general government...	12 522	8 764	-3 758
Domestic credit (except loans to general government.....)	102 737	129 605	26 868
Households.....	44 591	57 041	12 449
Non-financial corporations....	45 539	56 527	10 988
Non-monetary financial institutions .....	12 607	16 037	3 431
Currency in circulation .....	4 562	5 620	1 059
Deposits and deposit-like instruments.....	103 027	114 534	11 507
Securities other than capital ....	10 769	13 317	2 548
Capital and reserves .....	15 905	20 846	4 940
Sundry items (net) .....	-3 980	-6 801	-2 820

negative, with a swing from a credit position to a debit position of banks vis-à-vis non-residents. This trend essentially reflects a strong growth in liabilities to non-resident monetary financial institutions (in March 2000 the year-on-year rate of change of this aggregate was 28.0 per cent, compared with a change of 11.2 per cent in claims on the non-resident sector). Liabilities to the non-resident sector are predominantly of a short-term nature (around 75 per cent with a maturity up to one year), although it should be noted that from mid-1999 onwards longer-term financing has been gaining increasing importance.

**8. PUBLIC FINANCES**

According to the latest estimates, in 1999 the general government deficit, on a National Accounts basis (ESA95)<sup>(36)</sup>, stood at 2.0 per cent of GDP (Table 8.1). This figure represents a decline of 0.3 p.p. of GDP from 1998. The primary balance remained at 1.2 per cent of GDP, after a decline of 0.5 p.p. of GDP in 1998.

The target of the Stability Programme for the 1999 deficit was achieved, although receipts and expenditure were higher than initially forecast. The primary balance fell short of the Programme's forecasts by 0.1 p.p. of GDP.

According to the Banco de Portugal estimates, the cyclically-adjusted total deficit declined by 0.3 p.p. of GDP in 1999. The cyclically-adjusted primary balance remained broadly at the same level as that recorded in 1998, albeit far below the figures recorded from 1995 to 1997.

The reduction of the deficit, as a percentage of GDP, was due to the sharp increase in current receipts (1.1 p.p.) and to a slight decrease in interest payments (-0.2 p.p.), since primary current expenditure showed a strong increase (1.0 p.p.). The capital balance remained virtually unchanged, as a percentage of GDP.

Developments in current receipts resulted essentially from the high growth rates of receipts from income and property taxes (8.4 per cent), social contributions (8.9 per cent) and taxes on goods and services (10.2 per cent). Reference should be made, in particular, to the increase in Value Added Tax (VAT) revenue (12.5 per cent), which was much higher than the change in the respective base, and to the slight decrease in revenue from the tax on oil products (-0.4 per cent).

The main explanatory factors behind the developments in primary current expenditure were the rather sharp growth of staff costs (9.2 per cent) and current transfers to households (8.8 per cent) and to corporations (subsidies) (26.6 per cent). Investment expenditure also recorded a strong increase in 1999 (11.2 per cent).

(36) The general government accounts referring to 1998 and 1999 are estimates of the Banco de Portugal based on the latest data compiled by INE and the Ministry of Finance (see footnote 3). GDP figures are also estimates of the Banco de Portugal and stand, in terms of level, above those used in the excessive deficit procedure.

Table 8.1

### GENERAL GOVERNMENT ACCOUNTS

As a percentage of GDP

	1995	1996	1997	1998	1999
Tax receipts . . . . .	34.4	35.3	35.5	35.4	36.4
Other current receipts . . . . .	4.0	4.3	3.9	4.1	4.3
Primary current expenditure . . . . .	33.4	34.2	34.1	34.6	35.6
Interest . . . . .	6.3	5.4	4.2	3.5	3.2
Capital receipts . . . . .	1.9	2.1	2.4	1.9	2.1
Capital expenditure . . . . .	5.2	5.8	6.0	5.7	5.9
Total balance . . . . .	-4.6	-3.8	-2.5	-2.3	-2.0
Memo:					
Primary balance . . . . .	1.7	1.6	1.7	1.2	1.2
Cyclically-adjusted primary balance . . . . .	2.8	2.4	2.0	0.8	0.8
Public debt . . . . .	64.4	62.8	59.4	55.2	55.3

The general government gross consolidated debt, as a percentage of GDP, increased slightly in 1999, standing at 55.3 per cent at the end of the year (55.2 per cent at the end of 1998). This outcome was, to a large extent, due to the high amount of debt settlements by the Treasury, which exceeded privatisation receipts allocated to debt redemption, to the increase in general government deposits and to the fact that the adjustment of the complementary period<sup>(37)</sup> was positive in 1999, conversely to 1998.

The State Budget for 2000 has an implicit general government deficit corresponding to 1.5 per cent of GDP, in accordance with the National Accounts methodology (ESA95). This target was confirmed in the updated Stability Programme and in the excessive deficit procedure notification of last February.

The State Budget for 2000 is still in line with the major fiscal developments in recent years, and foresees a sharp increase in receipts and primary expenditure. The main risks for the 2000 budget outcome are related to tax revenue.

The freezing of expenditure, usually envisaged in the Budget Law was significantly enlarged in 2000. Thus, if tax collection reveals difficulties in

(37) The adjustment of the complementary period for year  $t$  is the difference between the expenditure of year  $t-1$  actually paid in  $t$  and the expenditure of year  $t$  actually paid in  $t+1$ .

the course of the year, there is some room for ensuring the achievement of the target for the deficit, strengthened by the fact that investment expenditure will probably fall short of the forecast. In fact, this may be caused by the belated approval of the Budget, by the fact that 2000 is the first year of implementation of the new Community Support Framework and finally, by the announcement, after the approval of the Budget, of expenditure cuts with a particular emphasis on investment.

In recent years, the reduction of the deficit in Portugal has relied on a strong growth of revenue, in particular tax revenue, as well as on the decrease in interest payments, accommodating a significant increase in primary current expenditure. The limitations of this pattern of deficit reduction are evident, making a new fiscal strategy necessary. This is acknowledged in the updated Stability Programme, which envisages a downward trend in primary current expenditure in the last years of the Programme (Box — “*Fiscal prospects in Portugal*”). This change in the pattern of fiscal policy requires a set of measures, which are partly disclosed in the Programme. Discretionary tax increases do not seem to be an alternative taking into account the increased competition within the euro area, to which several governments have reacted with programmes targeted at reducing the tax burden. In sum, budget management in the years to come will be much more difficult than in the recent years.

## 9. FORECASTS FOR 2000

For the year 2000, Banco de Portugal expects the real output in Portugal to increase, on average, at a rate in the range between 2¾ per cent and 3¼ per cent (Table 9.1)<sup>(38)</sup>, which is approximately similar to the one estimated for 1999. This scenario will, however, result from a more balanced composition of external and domestic demand growth

(38) The projections presented for this year were based on the following underlying technical assumptions: short-term interest rates and exchange rates were kept unchanged in the forecast horizon, being equal to the average rates observed in the two weeks ending on 17 March in the case of the interest rates, and on 22 March in the case of the exchange rates. As regards the external demand for Portuguese exports, the most recent forecasts for Portugal's main trading partners as a whole were taken into consideration.

Table 9.1

**MAIN ECONOMIC INDICATORS**  
Percentage rates of change

	1999	2000
Private consumption . . . . .	4.9	3 ¼ - 3 ¾
Public consumption . . . . .	3.4	2 - 2 ½
GFCF . . . . .	5.3	3 ¾ - 4 ¾
Domestic demand . . . . .	4.8	3 ¼ - 3 ¾
Exports . . . . .	4.6	7 ½ - 8 ½
Overall demand . . . . .	4.8	4 ¼ - 4 ¾
Imports . . . . .	9.0	8 - 9
GDP . . . . .	3.0	2¾ - 3 ¼
Current account + capital account (% GDP) . . . . .	-6.6	-9 ½; -8 ½

than in the recent past. A clearly more favourable international environment will bring about a strong expansion of external demand for national exports, whereas the beginning of the fading away of the effects of the past cuts in interest rates, followed by their recent small rise, along with the already high levels of indebtedness positions, will create the conditions for a smaller growth of domestic demand in 2000. Public consumption is assumed to grow less than in recent years and, conversely to 1999, at a lower rate than the GDP growth rate, also contributing to the deceleration in domestic demand. The volume of imports will likely slow down slightly, due to the deceleration in some components of domestic demand with a higher import content. All in all, the expansion of exports of goods and services will offset the expected decrease in domestic demand, virtually halving the negative contribution of net exports to output growth (-2.2 per cent in 1999). In terms of risk assessment, available information indicates, albeit slightly, that the output growth has a greater probability of outcoming in the upper half of the range.

Private consumption by residents in 2000, in real terms, is expected to increase at a rate between 3¼ per cent and 3¾ per cent. Thus, it appears that private consumption will continue to grow considerably in 2000, above the output growth rate, though slowing down relatively to the two previous years. Although real disposable household income is expected to accelerate, it

should continue to grow, at a lower rate than consumption, similarly as in the recent past, thereby implying a further reduction in household savings by some ½ percentage point. The historically low levels of bank interest rates despite the slight rebound in recent months and the high levels of the consumer confidence indicators, continue to be the main explanatory factors for the strong growth of consumption and the reduction of the savings ratio. However, the gradual disappearance of the effects of the adjustment to the new regime of lower inflation and interest rates, arising from the participation of Portugal in the euro area, justifies the decelerating trend of consumption foreseen for 2000. In addition, owing to the indebtedness levels meanwhile achieved, households are not expected to keep up the pace of increase of their indebtedness, to finance an expenditure growth as strong as in 1998 and 1999.

GFCF is expected to grow, in volume, between 3¾ per cent and 4¾ per cent, i.e. around 1 p.p. lower than the estimate for 1999. These developments partly reflect the deceleration foreseen for the housing GFCF component, after two years of strong expansion. The factors behind this projected deceleration are quite similar to those mentioned above regarding the slowdown in private consumption: the gradual disappearance of the effects of previous interest rate cuts, the indebtedness level already achieved, and the difficulty in keeping up the same pace of future increase in indebtedness, which would be necessary to finance a high investment growth rate. Besides, GFCF is expected to decelerate in 2000, directly on account of the general government investment which will probably end up lower than the figure presented in the General State Budget as mentioned in the previous section.

In 2000, exports in goods and services are projected to grow between 7½ per cent and 8½ per cent, thus strongly accelerating in comparison with 1999 (4.6 per cent). The projections of all international organisations point to a much more favourable international environment in 2000 and economic activity in the euro area and the world is expected to accelerate significantly. In line with this international background, external demand for goods is expected to increase significantly. Growth of exports of tourism services is also expected to recover, to a rate in line with the average

growth of the two previous years, once the effects which influenced the growth rate in 1999 disappear.

Imports of goods and services are foreseen to record a slight slowdown in 2000, in comparison with the previous year, and their growth is estimated to stand between 8 per cent and 9 per cent (9 per cent in 1999). This development reflects the deceleration of domestic demand, particularly as regards the consumption of durable goods, the effect of which on imports is not expected to be fully offset by the increased buoyancy of exports.

As a result of these prospective figures on import and export volumes, and of a deterioration in terms of trade, aggregate current and capital account deficits will likely continue to rise in 2000, delivering a figure between 8½ per cent and 9½ per cent of GDP (6.6 per cent in 1999). The deterioration in terms of trade, which accounts for more than half of the widening of the deficit, reflects almost exclusively the rise in the oil price when measured in domestic currency (i.e. the rise in the oil price in US dollars and the depreciation of the euro vis-à-vis the US dollar).

### 10. CONCLUSION

There was a slowdown in economic activity in 1999, which extended to all components of total demand, with the exception of public consumption. In 2000 the output is expected to show a real growth similar to that estimated for 1999, although reflecting a significant recomposition with the continued deceleration in domestic demand and a strong acceleration in exports.

The recent behaviour of private domestic demand, consumption and investment essentially shows the boost given to expenditure as a result of the sizeable cuts in interest rates, which took place in previous years, in an attempt to align them with the lowest levels of the countries which make up the euro area since January 1999. The effects of the interest rate cuts on expenditure appear to have been increased by the fact that such cuts were mostly seen as being irreversible, and associated with the change to a macroeconomic regime characterised by price stability. Likewise, the reduction in interest rates led to a substantial increase in the degree of household and corporate indebtedness observed in recent years and allowed the financ-

ing of a rather high growth of private consumption and investment. It should be noted that despite the deceleration recorded in 1999 and forecast for 2000, investment, and especially private consumption, continue to grow at a faster pace than GDP, therefore the recent upward trend of the household and corporate indebtedness ratios is expected to be maintained in 2000, albeit slightly easing.

The persistence of the recent buoyancy of the Portuguese domestic demand is not desirable, for that would eventually lead to unsustainable indebtedness levels, which would imply an excessive vulnerability to domestic or external shocks.

In sum, the deceleration of domestic demand must continue. If this does not happen in the near future, the risk of a higher short-term growth may eventually imply, in the medium term, sharp and protracted adjustments in the Portuguese economy.

The effect of the expected deceleration in domestic, private and public demand on the real output growth levels will be the less sharp, the greater the export buoyancy. The external demand trend forecasts currently available for the next years are quite favourable, paving the way for the smoothing of the effects of the deceleration in domestic demand. In this context, a very important factor enabling the rebalance of the current account and the recovery of output growth in favour of exports will be the efficient operation of the Portuguese labour market. Following the strong rises in real wages and in relative unit labour costs observed in the recent past, a strong wage moderation is required from 2000 onwards, so as to ensure a favourable trend of unit labour costs per unit produced in the Portuguese economy, vis-à-vis Portugal's trading partners. Only increased productivity will allow wage increases consistent with the gains in market shares of Portuguese exports and the containment of the increase in the degree of import penetration in the domestic market. This will therefore help to reduce external financing needs and to offset the effects of the deceleration of domestic demand on the output growth rate. Against this background, should wage moderation not occur, competition will be jeopardised and unemployment will likely increase.

At the present juncture, in which monetary and foreign exchange policy are conducted by the Eurosystem, while taking into account the economic conditions for the euro area as a whole, the adjustment process of the Portuguese economy should be supported by fiscal policy. The continued effort towards reducing the public deficit and, in particular, moderating public expenditure growth, is an important contribution to support the deceleration of domestic demand. This will

imply the curbing of the trend of a high growth of current primary expenditure observed in recent years.

In sum, wage moderation and sustained fiscal consolidation are two conditions necessary for the sustainability of the growth of the Portuguese economy.

Completed with data available up to 27 April 2000.

**Box - FISCAL PROSPECTS IN PORTUGAL**

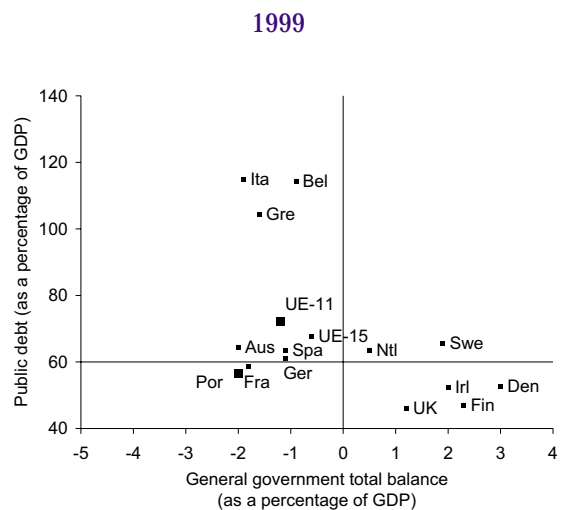
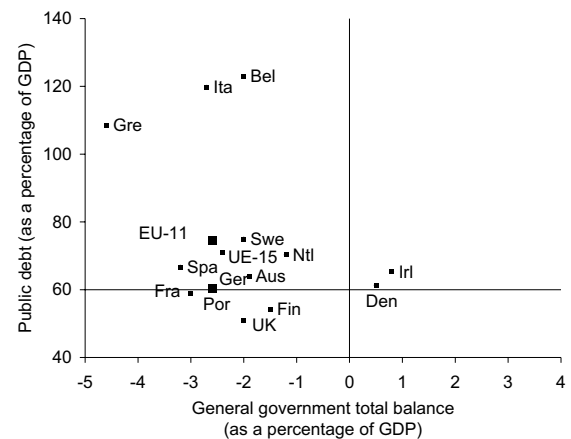
The Government submitted to the European Commission last February the update of the Stability and Growth Programme. In this document the main targets for fiscal policy are the reduction of the general government deficit and the public debt, as a percentage of GDP. The deficit reduction will lead to a balanced budget in 2004. The public debt ratio is due to decrease from 2001 onwards, to stand at 48.4 per cent at the end of 2004.

The Programme recognises the limits of the fiscal development pattern followed in recent years and defines a change relative to recent trends, including the prospects arising from the 2000 State Budget, i.e. a sharp growth of current revenue and primary current expenditure and a significant reduction in interest payments. This box analyses the importance and the assumptions of the referred change in fiscal policy.

In recent years the fiscal policy allowed the fulfilment, every year of the targets set out in the successive medium-term programmes, making possible Portugal's participation in the core of the single currency's founder countries. The general government deficit in Portugal recorded a downward trend, decreasing from 4.6 per cent of GDP in 1995 to 2.0 per cent in 1999.

However, according to the spring 2000 European Commission economic forecasts, Portugal (along with Austria) posted the highest deficit in the European Union (EU) as a whole in 1999, i.e. 1.4 per cent of GDP above the EU average. In 1997 Portugal's deficit was lower than that of Spain, France, Italy and Greece, and only 0.2 per cent of

Chart 1  
TOTAL BALANCE AND PUBLIC DEBT  
IN THE EUROPEAN UNION  
1997





GDP above the EU average (Chart 1). In fact, the present situation represents a deterioration in the relative position in the EU as a whole, although in the period 1997-1999 the real growth of the Portuguese economy stood above the European average.

The reduction of the deficit in Portugal has been following a pattern which is substantially different from the one observed in the remaining EU Member States. Indeed, it has coexisted with significant increases in primary expenditure and tax revenue. The increases in primary expenditure have been mainly due to the strong expansion of staff costs and current transfers, in particular to households. Given these developments, the deficit has been decreasing as a result of the sharp growth of tax revenue (due to the effects of the business cycle, developments in the composition of demand and improvements in tax administration) and the decrease in interest payments. Charts 2A, 2B and 2C compare the fiscal consolidation patterns in EU Member States in the 1995-1999 period and those forecast for 1999-2001.

The change in the pattern of fiscal policy is only likely to take place after 2000, given that the prospects arising from the 2000 State Budget essentially keep to the previous trend. According to the general government accounts submitted by the government in the Stability and Growth Programme, current revenue, after having increased by 6.1 p.p. of GDP from 1995 to 2000, is expected to increase only by 0.3 p.p. from 2000 to 2004. Primary current expenditure, after having increased by 5.5 p.p. of GDP in the 1995-2000 period, is set to fall by 0.9 p.p. up to 2004. Debt interest payments, after having declined by 3.1 p.p. of GDP from 1995 to 2000, will likely increase slightly in 2001 to fall subsequently by 0.4 p.p. up to 2004. Capital expenditure is also expected to record an evolution, similar to that of primary current expenditure increasing by 2.1 p.p. of GDP from 1995 to 2000, to decline subsequently by 0.5 p.p. up to 2004. According to the European Commission forecasts, the consolidation pattern up to 2001 does not differ from the one observed in the 1995-1999 period (Charts 2A, 2B and 2C). On the other hand, if the European Commission forecasts on tax revenue are confirmed, in 2001 Portugal will have a rising tax burden, in contrast to the develop-

Chart 2A  
CHANGE IN THE ADJUSTED  
PRIMARY BALANCE  
1995-1999

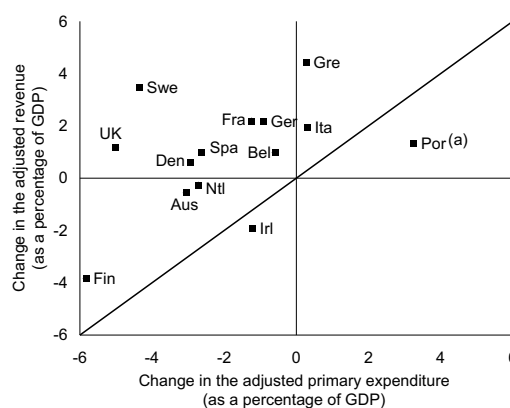


Chart 2B  
CHANGE IN THE CURRENT BALANCE  
1999-2001

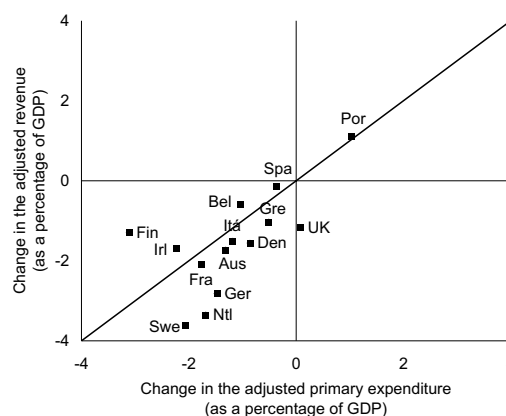
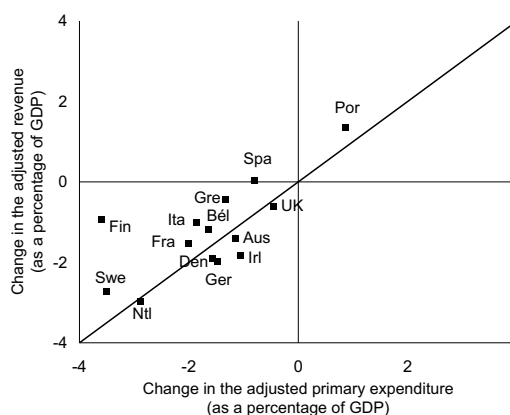


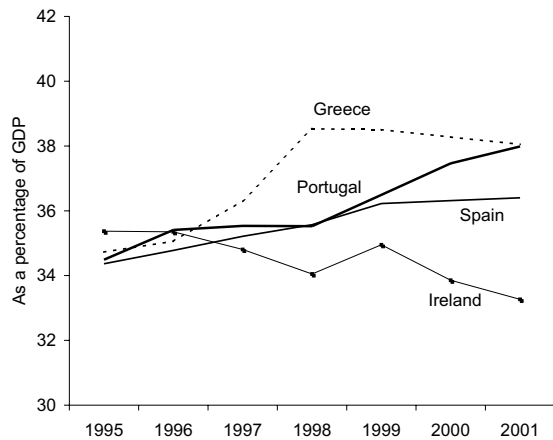
Chart 2C  
CHANGE IN THE CURRENT BALANCE  
1999-2002



Source: European Commission, Spring 2000.

Note: (a) Banco de Portugal estimates.

Chart 3  
TAX BURDEN IN COHESION COUNTRIES



Source: European Commission, Spring 2000, and Banco de Portugal.

Note: The concept of tax burden includes revenue from income and property taxes, from taxes on goods and services, from social contributions and from capital taxes.

ments forecast for the remaining cohesion countries (Chart 3).

Fiscal policy is thus set to be based on the containment of primary expenditure, with implications on the increase in the number of public sector employees and on possible wage increases. Under these conditions, it will be possible to ensure a downward trend of the deficit, without excessively penalising investment and/or increasing taxes. This shift in the policy stance will imply increased difficulties in the implementation of fiscal policy in the years ahead, albeit being a necessary condition for the sustained growth of the Portuguese economy in the medium and long term.

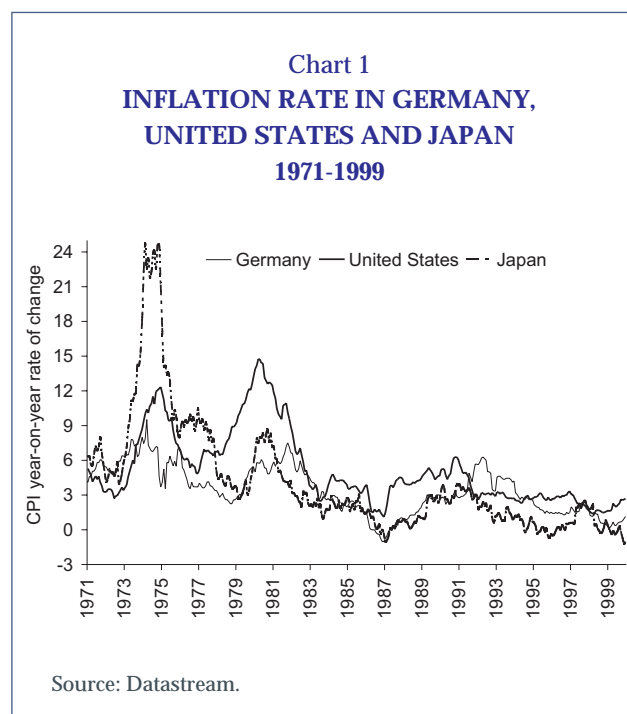
## TAYLOR RULES\*

*Fernando Martins\*\**

### 1. INTRODUCTION

Building on Taylor's seminal article (1993), a wide set of literature has tried to identify the monetary policy features prevailing in the course of the past two decades, during which the monetary authorities proved to be rather efficient in reducing inflation (chart 1). In this literature, the conventional approach consists in estimating a reaction function for a monetary authority (the Federal Reserve, in most cases) in which a nominal benchmark interest rate is adjusted in response to inflation (actual or expected) and output deviations from their equilibrium levels. These reaction functions, usually called Taylor rules, are consistent with a set of principles proposed in the literature for the optimal monetary policy rules.

Given the prominent role played by Taylor rules in the recent debate on monetary policy, this article presents a summary of the empirical literature on the subject, briefly focusing on the possible advantages, as well as on the operational difficulties and limitations associated with the use of this kind of analysis instrument. In section 2, the Taylor rule is analysed within the scope of the literature on monetary policy and some empirical results are presented. The main operational issues and the limitations associated with the use of the rule are discussed in section 3. Finally, section 4 concludes, arguing that notwithstanding the identified limitations, Taylor rules may provide a use-



ful element of analysis in the debate on monetary policy.

## 2. TAYLOR RULES: THEORETICAL FRAMEWORK AND EMPIRICAL APPLICATIONS

### 2.1 Theoretical framework

The sharp increase in inflation rates, recorded in several industrial countries during the 1970s — the so-called “High Inflation” period — has directly or indirectly given rise to a large part of the investigation in the field of monetary economy. The pioneer works of Kydland and Prescott (1977) and Barro and Gordon (1983) have shown that, if the monetary authorities have incentives to expand output (reduce unemployment) above (below) its equilibrium level, the discretionary policy

\* Economic Research Department.

\*\* The views expressed in this paper are those of the author and not necessarily those of the Banco de Portugal. The author is grateful for the comments of Marta Abreu, Carlos Robalo Marques, Pedro Teles, José A. Ferreira and Maximiano Pinheiro, which have significantly contributed to improve this paper. The author is fully responsible for any errors.



will have a bias towards an excessive inflation (the so-called “inflation bias”)<sup>(1)</sup>. In this sense, these authors argue in favour of a reform of monetary institutions, as a mean of preventing inflation from reaching again the values recorded in the 1970s. These reforms would include, inter alia, the setting-up, by legislative means, of an independent central bank, responsible for the control of the monetary policy instruments, and with the explicit objective of maintaining price stability.

During the past few years, increasing attention has been paid to the way monetary policy is conducted and, in particular, to the role played by monetary policy rules. Several reasons seem to be behind this trend, namely the fact that since the late 1980s a wide set of literature has pointed to the significant influence of monetary policy on the performance of economic activity in the short run. In most of these works, the temporary price rigidity is the basic friction, which explains the non-neutrality of monetary policy. The literature tries to identify simple monetary policy rules, capable of reducing the probability of emergence of inflationary shocks similar to those occurred in the 1970s. Among these rules, those trying to model the way the monetary authority changes the monetary policy instrument (usually, a short term interest rate) have played a prominent role. These rules are now called “Taylor rules”, after John Taylor’s paper published in 1993. The original formulation of the Taylor rule was the following:

$$i_{TAYLOR} = r^* + \pi_t + \gamma(\pi_t - \pi^*) + \phi x_t \quad (1)$$

or, in an equivalent way, with  $\beta = 1 + \gamma e \theta =$   
 $= r^* + (1 - \beta)\pi^*$ :

$$i_{TAYLOR} = \theta + \beta\pi_t + \phi x_t \quad (1a)$$

(1) Christiano and Gust (1999) argue that Barro and Gordon’s theories may have lost some of their influence in recent years because evidence did not confirm them. In the United States, and in the absence of any institutional reform, from the early 1980s onwards there was a sustained fall in inflation, three years before the unemployment rate started to decrease from historically high levels. Between 1980 and 1983, the US inflation rate decreased from 13.5 to 3.2 per cent, whereas in the same period the unemployment rate increased from 7.2 to 9.7 per cent — the highest level recorded in the second half of the century. A similar phenomenon took place in Europe and in other countries, i.e. inflation seems to have started to abate when incentives to its emergence were bigger.

where  $i_{TAYLOR}$  is the target interest rate proposed by the rule,  $\pi_t$  the average inflation rate in the past four quarters (measured by the GDP deflator),  $\pi^*$  the target for the inflation rate,  $x_t$  the output gap (defined as the deviation of output from potential output, as a percentage of potential output) and  $r^*$  the equilibrium real interest rate. All variables are defined in levels. It should be noted that if  $\beta > 1$  and  $\phi > 0$ , the real interest rate is adjusted in order to stabilise inflation and output; if  $\beta < 1$ , part of the inflation is accommodated. In this case, the nominal interest rate change is not sufficient to give rise to a real interest rate change in the same direction. The same applies to  $\phi$ , which must be non-negative in order to obtain a stabilising rule. This kind of analysis is somewhat contrasting, for instance, with that of the so-called limited participation models (see Box).

The main contribution of Taylor’s work was the distinction between normative and positive elements. At the normative level, approximate (and sometimes exact) formulations of the Taylor rule are optimal for a monetary authority with a quadratic loss function in inflation and output deviations from their respective targets, in a context of general equilibrium models with price rigidity [see, for example, Ball (1997)]<sup>(2)</sup>. In particular, the rule stipulates that, in response to an inflation rate increase, the nominal interest rate is sufficiently adjusted in order to raise the real interest rate<sup>(3)</sup>. At the positive level, Taylor demonstrated that with

(2) In most models, an optimal monetary policy rule is defined as one that minimises the weighted sum of output and inflation variances, the weights being determined by policy-makers’ preferences. An efficient rule is one that, given the weights, becomes optimal, or one that places the economy in the boundary defined by output and inflation variances.

(3) Clarida, Galí and Gertler (1999) build on a monetary authority objective function targeted at minimising output ( $x_t$ ) and inflation ( $\pi_t$ ) gaps vis-à-vis their equilibrium values, which is subject to two restrictions: an equation which establishes an inverse relation between the output gap ( $x_t$ ) and the real interest rate (IS curve); and another equation which establishes a positive relation between inflation and the output gap (Phillips curve). The solution for this problem leads to the following optimality condition:

$$x_t = -(\lambda / \alpha)\pi_t$$

where  $\lambda$  and  $\alpha$  translate the gain in terms of inflation per output unit (a parameter of the Phillips curve) and the weight of the output gap on the target function, respectively. Whenever inflation stands above the target ( $\pi_t > 0$ ), the output gap must narrow (the interest rate increases), the reverse occurring when the inflation rate is lower than the target defined.

certain values for the parameters (the values defined by Taylor were  $\beta=1.5$ ,  $\varphi=0.5$ ,  $\pi^*=2$  and  $r^*=2^{(4)}$ ), the rule provides a reasonable description of the US Federal Reserve monetary policy from 1987 to 1992 (the beginning of this period coincides with the entrance into office of the Federal Reserve Chairman, Alan Greenspan).

## 2.2 Taylor rule and monetary policy gradualism

The kind of formulation originally proposed by Taylor does not consider the gradualist approach, which seems to characterise the action of monetary authorities in many situations (the so-called “interest rate smoothing”). This problem may be solved by means of a partial adjustment of the interest rate ( $i_t$ ) vis-à-vis the target defined by the rule ( $i_{TAYLOR}$ ):

$$i_t = \rho i_{t-1} + (1 - \rho) i_{TAYLOR} \quad (2)$$

With  $\rho$  defining the degree of monetary policy gradualism ( $0 < \rho < 1$ ). Combining (1a) and (2) we obtain:

$$i_t = (1 - \rho)\theta + (1 - \rho)\beta\pi_t + (1 - \rho)\varphi x_t + \rho i_{t-1} \quad (3)$$

The values estimated for the adjustment coefficient ( $\rho$ ) range generally between 0.6 and 0.8 for quarterly data, and are close to 0.9 for monthly data<sup>(5)</sup>.

In several models, there is an implicit trade-off between the interest rates volatility, on the one hand, and inflation/output volatility, on the other. In other words, there is the possibility of stabilising output and inflation according to policy rules, which despite being very aggressive, induce significant interest rate fluctuations. To overcome this problem, the monetary authority loss function may be increased by including an interest rate stabilisation term:

(4) Several studies have subsequently shown that a modified version of the original Taylor rule with a higher  $\varphi$  coefficient would have better stabilising properties, while continuing to give a good description of the recent behaviour of monetary policy [see for instance Taylor (1999a)].

(5) It is possible to demonstrate that in a model described by equation (3) the average transmission lag to the interest rate of a unit variation in the inflation rate equals  $\rho / (1 - \rho)$ . In this context, a value of 0.8 for  $\rho$  for quarterly data corresponds to a value of 0.5 in the case of annual data.

$$L_t = (\pi_t - \pi^*)^2 + \lambda x_t^2 + \nu(i_t - i_{t-1}), \text{ com } \lambda > 0 \text{ e } \nu > 0$$

Sack and Wieland (1999) argue that the existence of gradualism in monetary policy is useful when the economic agents have a forward-looking behaviour, when there are measurement errors associated with certain fundamental variables, or when some relevant structural parameters are not known. In models with forward-looking expectations<sup>(6)</sup>, rules of type (2) may be more appropriate in the stabilisation of inflation and output than those without partial adjustment. With a sufficiently gradualist policy, agents expect a small initial interest rate movement to be followed by additional movements in the same direction, which increases the monetary policy impact on output and inflation, avoiding large interest rate changes. On the other hand, models usually assume that policy-makers consider economic variables without any type of measurement errors. In practice, economic data tend to be revised on several occasions after their first release. Thus, a rule of type (2) may moderate the interest rate response to the first release of data, when these are still subject to revisions. Finally, due to uncertainty regarding the fundamental parameters of the economic structure underlying the transmission mechanism, authorities chose to act more cautiously, making gradual interest rate adjustments.

The literature gives other explanations for the preference of monetary authorities for the adoption of a gradualist policy, such as the concern in avoiding adverse reactions from financial markets to frequent and opposite changes in official interest rates, or for reasons concerning the monetary authority reputation [see Goodhart (1995)].

## 2.3 Taylor rules and the forward-looking nature of monetary policy

Formulations (1) and (2) consider only current inflation, not taking into account the forward-looking nature of monetary policy. Taking this into consideration, Clarida, Galí and Gertler [CGG, (1998)] examine the US monetary policy since 1960, on the basis of a forward-looking version of the Taylor rule:

(6) As opposed to expectations based only on the extrapolation of past behaviour.

Table 1

**ESTIMATED VALUES FOR THE FED  
REACTION FUNCTION**

GMM estimation; standard deviations  
in parenthesis

	$\beta$	$\varphi$	$\rho$
Pre-Volcker . . . . .	0.8	0.44	0.75
1960:1 – 1979:2 . . . . .	(0.09)	(0.04)	(0.04)
Volcker-Greenspan . . . . .	1.8	0.12	0.66
1979:3 – 1996:4 . . . . .	(0.19)	(0.13)	(0.04)

Source: Clarida, Gali e Gertler (1998).

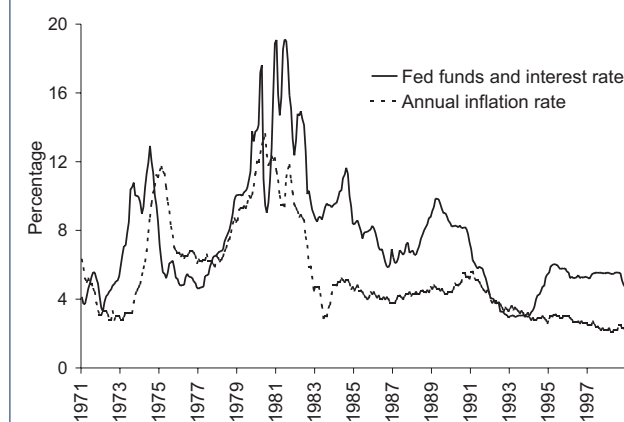
$$i_t = \theta + \beta E_t \pi_{t+1} + \varphi x_t \quad (1b)$$

As in the original rule (1), the magnitude of parameters  $\beta$  and  $\varphi$  characterises the monetary policy stance, and it is still desirable that  $\beta > 1$  and  $\varphi > 0$ . This version has the advantage of considering the Taylor rule as a particular case. Indeed, if both the current inflation and the output gap are sufficient to explain future inflation, then the two formulations are equivalent.

CGG concluded that the Taylor rule, with the formulation suggested, characterises adequately the US monetary policy from 1979 to 1996 (the period in which the Chairmen of the Federal Reserve were successively Paul Volcker and Alan Greenspan). During the preceding period (1960-79), coefficient  $\beta$  is lower than 1 (table 1), suggesting that monetary policy accommodated somehow the increases in expected inflation. For the Volcker-Greenspan period, this value is significantly higher than 1. Given that in this period, the coefficient  $\varphi$  is not significantly different from zero, the output gap influenced the Federal Reserve reaction function only as an inflation rate predictor.

The change in the Federal Reserve monetary policy stance from 1979 onwards is shown in chart 2. This chart shows that from mid-1979 onwards there was a shift in the interest rate behaviour. Until 1979, the ex post real interest rate was negative or nil on several occasions. As from 1979, the real interest rate became positive.

**Chart 2  
UNITED STATES  
Inflation rate and interest rate  
1971-1998**



Source: Datastream.

Table 2

**MONETARY POLICY RULES FOR  
THE FEDERAL RESERVE**

Estimation by the ordinary least square  
method; *t* statistics in parenthesis

	Constant	$\beta$	$\varphi$
1960:1 – 1979:4 . . . . .	2.05 (6.34)	0.81 (12.9)	0.25 (4.93)
1987:1 – 1997:3 . . . . .	1.17 (2.35)	1.53 (9.71)	0.77 (8.22)
1954:1 – 1997:3 . . . . .	1.72 (5.15)	1.10 (15.1)	0.33 (3.16)

Source: Taylor (1999b).

Identical results are obtained in Taylor's work (1999b). Several episodes of the US monetary policy history are analysed in this paper, leading to the conclusion that the type of rule which characterises the Federal Reserve policy in the so-called "Greenspan era" is quite different from the one of the preceding periods. This shift is associated with an equally significant reduction of both output and inflation volatility in the United States. Table 2 presents a numeric example of the magnitude of

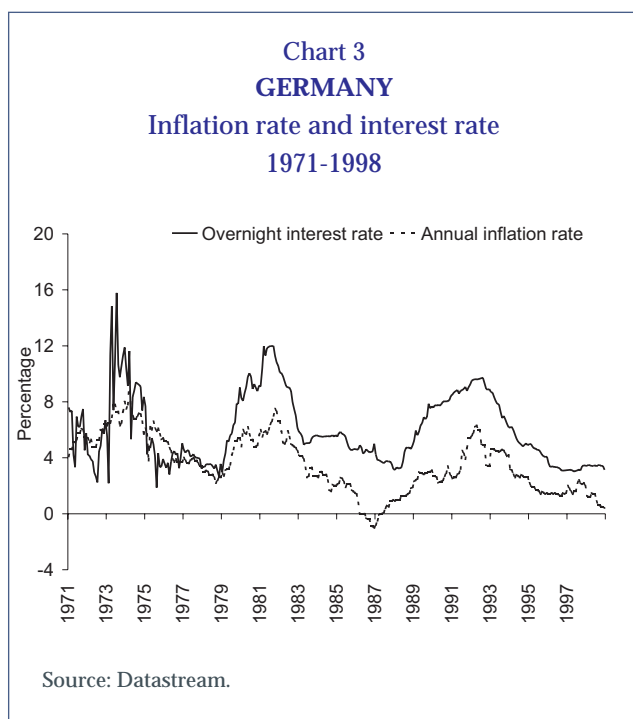


Table 3

**ESTIMATED VALUES FOR THE**  
**BUNDESBANK (1979:3-1993:12) AND FOR THE**  
**BANK OF JAPAN (1979:4-1994:12)**  
**REACTION FUNCTION**  
GMM estimation; pattern  
deviations in parenthesis

	$\beta$	$\phi$	$\rho$
Deutsche Bundesbank . . .	1.31 (0.09)	0.25 (0.04)	0.91 (0.01)
Bank of Japan . . . . .	2.04 (0.19)	0.08 (0.03)	0.93 (0.01)

Source: CGG (1997).

this reversal in the performance of monetary policy.

It is interesting to verify that two other central banks, the Bundesbank and the Bank of Japan (chart 3), have behaved similarly after 1979. CGG (1997) estimate the rule with the same specification and obtain results, which are similar to those for the Federal Reserve in the Volcker-Greenspan period (table 3). This behaviour was mirrored in a worldwide disinflation process as from the 1980s.

### 2.4 Information problems in the real time application of Taylor rule

Orphanides (1999) analyses a type of limitation associated with the utilisation of Taylor rules to characterise from an historical point of view the monetary policy stance. Orphanides argues that the validity of the conclusions obtained in the works mentioned in the last section is seriously threatened, as these are based on unrealistic assumptions regarding the set of data available to the monetary authorities at the decision-making moment. In particular, rules admit that authorities have reliable information on the contemporary values of inflation and output gap when they decide on level of interest rates. However, in particular the output gap<sup>(7)</sup> is measured with a considerable margin of error, being frequently subject to significant revisions.

The problem may be analytically described as follows. Being  $e_t$  the measurement error of the true inflation rate ( $\pi^a$ ) and  $f_t$  the measurement error of the true output gap ( $x^a$ ):

$$\pi_t^a = \pi_t + e_t \tag{4}$$

$$x_t^a = x_t + f_t \tag{5}$$

Substituting (4) and (5) in (1), Taylor rule is obtained according to inflation and output gap true values and to the measurement errors:

$$i_{TAYLOR} = r^* + \pi_t^a + \gamma(\pi_t^a - \pi^i) + \phi x_t^a - [(1 + \gamma)e_t + \phi f_t] \tag{1c}$$

Equation (1c) reveals the true nature of the problem. The setting of the interest rate level on the basis of the inflation rate or the output gap may, under certain circumstances, lead to undesirable effects, because authorities do not know the true values of these two variables. Therefore, an historical analysis of the monetary policy stance should be conducted on the basis of the information available at the decision-making moment.

Orphanides examines the US economic performance from 1965 to 1993 in the light of a Taylor rule, but with real time data. The final series and

(7) The measurement of the output poses, in general, two types of problems: one concerns the measurement of output itself and the other involves the potential output calculation method.

the real time series for the inflation rate show differences that in the first half of the 1970s are frequently higher than one percentage point. Nevertheless, when compared with the output gap differences, the measurement error for the inflation rate may be considered low. Indeed, the real time output gap series is systematically below the final series in all the sampling period. This holds particularly true during the 1970s, when the difference between the two series reached around ten percentage points. The most interesting conclusion of Orphanides work is perhaps that the original formulation of the Taylor rule describes quite well the Federal Reserve behaviour, not only in the past years but also during the 1970s — the so-called “High Inflation” period — when real time information is used. Therefore, the 1970s inflation acceleration may have been the result of an excessively lax monetary policy, which by contrast with the conclusions of Taylor works, followed closely a Taylor rule based on very unreliable data.

### 3. TAYLOR’S RULES: OPERATIONAL ASPECTS

From an operational point of view, the Taylor rule involves some aspects, which should be taken into account. One of them concerns the choice of the values to be used for parameters  $\beta$  and  $\phi$ . Table 4 shows the values suggested by different models for the US economy. It is evident that, although the parameters are not qualitatively very different, the results drawn from each model can be rather different in terms of magnitude. On the other hand, as derived from equation (1), the Taylor rule recommends an objective for the nominal interest rate, which depends on three variables (real equilibrium interest rate, target value for the inflation rate and the output gap) which are derived from a set of assumptions. The usefulness of Taylor rules for information purposes depends therefore on their robustness to small variations in the hypotheses assumed for these variables.

#### 3.1 Real equilibrium interest rate

One of these elements is the real equilibrium interest rate or “real neutral interest rate”, i.e. the interest rate which is consistent with a scenario where the inflation equals the target value defined by monetary authorities, and the output matches

Table 4

#### VALUES FOR PARAMETERS $\beta$ AND $\phi$ IN ACCORDANCE WITH VARIOUS MODELS

	Inflation deviation	Output gap
	( $\beta$ )	( $\phi$ )
Taylor (1993) . . . . .	1.50	0.50
Taylor (1999a) . . . . .	1.50	1.00
Ball (1997) . . . . .	1.50	1.00
Christiano (1999) . . . . .	3.00	0.50
Clarida, Galí e Gertler (1998) . .	1.80	0.12
Rotemberg e Woodford (1998) .	1.20	0.06

potential output. The interest rate recommended by the rule is rather sensitive to real equilibrium interest rate estimates: in the absence of monetary policy gradualism, real equilibrium interest rate changes have a one-for-one effect on the interest rate proposed by the rule. As it is not directly observed, the real equilibrium interest rate must be estimated. In accordance with the “golden rule” for the accumulation of capital, the marginal product of capital (which, in equilibrium is equal to the real interest rate) must be higher than the output growth rate (a condition for dynamic efficiency). For example, in the case of the euro area, current estimates of the potential output suggest that the real long-term equilibrium interest rate must have a floor close to 2-2.5 per cent. In Taylor’s original paper, the real equilibrium interest rate admitted for the United States is constant and equal to 2.0 per cent, whereas according to the CGG model (1997), the figures admitted are 3.5, 3.8 and 3.3 per cent for the United States, Germany and Japan respectively. Usually, the estimates result from the difference between two averages, i.e. from a nominal interest rate controllable by the monetary authority and the inflation rate, with both averages being calculated for a relatively wide sample. Evidence shows that the results can vary significantly according to the sample period; in certain cases this period can cover different monetary policy regimes.

In the case of the euro area the real equilibrium interest rate may have declined with the advent of the monetary union. Gerlach and Schnabel (1999) suggest that the reduction of the real equilibrium interest rate was greater in the countries whose currencies depreciated against the Deutsche mark



over recent years. However, the figure presented by these authors for the real equilibrium interest rate in the euro area (3.5 per cent) seems excessive, given that it covers a rather long period (1982-97) and weighs large and small countries similarly<sup>(8)</sup>. Based on the evidence compiled, the current level of the real equilibrium interest rate seems to stand at around 3.0 per cent — a figure close to the estimates obtained with a reaction function for the Bundesbank for the past two decades and to the average of the G7 real interest rates in the past five years.

It should be noted that the level of the real equilibrium interest rate is endogenous to the credibility of the monetary authority. For example, the more credible the European Central Bank (ECB) is in the pursuance of the objective of price stability, the lower the risk premium associated with inflation rate variability and the lower the real equilibrium interest rate.

### 3.2 Target value for the inflation rate

The most common Taylor rules incorporate an inflation target to be achieved in the medium term, which is constant over the whole sample period. However, the inflation targets have rarely been maintained over the time horizon of the analysis: the current inflation target is not necessarily the same as it was 10 or 20 years ago, depending, for instance, on the preferences of the monetary authorities over time, as well as on the monetary policy regime pursued. For example, the primary objective of the Eurosystem's monetary policy strategy is to maintain price stability, which is defined as an increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2 per cent per annum. In addition, it should be noted that the original Taylor rule uses as inflation measure the percentage change in the GDP deflator between year-on-year quarters, whereas CGG

(1997) use the Consumer Price Index (CPI). Thus, an analysis should be made of the robustness of the recommendations made by the rule as regards alternative inflation measures. Kozicki (1999) analyses the robustness of the Taylor rule by means of four alternative inflation measures — CPI, trend CPI, GDP deflator and expected inflation — concluding that the recommendations suggested by the rule are modestly robust across the various measures.

### 3.3 Output gap

The inclusion of the output gap in the rule poses several problems. Given that it is not an observable variable, the output gap must be estimated, with significant disparities being frequently observed across different estimates, depending on the estimation method that is used. For example, the European Commission forecasts disclosed last April showed estimates for the euro area output gap in 2000 of -0.2 per cent when the HP filter is used and -1.2 per cent when the production function approach is applied. On the other hand, it should also be noted that the concept of potential output itself, and hence of the output gap, is not consensual, for there are different notions in the literature.

For the purpose of formulating the monetary policy, the knowledge of the output gap estimates for the more close periods is particularly important. However, estimates for the contemporaneous output gap are uncertain, either because recent output figures are still preliminary or because most estimation techniques, namely univariate methods such as the HP filter, pose some problems at the end of the sample. Smets (1998) concludes that, within the scope of the Taylor rules, uncertainty in the output gap measurement reduces the responsiveness of the output gap estimate (coefficient  $\phi$ ) in comparison with that of the inflation rate deviation. In a way, this can explain the reason why the estimate for the coefficient associated with the output gap in the Taylor rule is normally lower than what is considered optimal in literature in general.

(8) The calculation of the real equilibrium interest rate for the euro area on the basis of the average of the real interest rates prevailing, for example, during the past two decades, is likely to show an upward bias. In fact, over this period, one could notice a disinflation process in the euro area, which may have caused real interest rates to stand above their equilibrium level. Against this background, it seems more appropriate to use the previous interest rates recorded in Germany - a country characterised by a high level of macroeconomic stability in recent years.



#### 4. CONCLUSIONS

Evidence shows that Taylor rules reasonably describe the behaviour of the main monetary authorities, namely the US Federal Reserve and the Bundesbank, in the past two decades — a period in which the monetary policy performance is generally considered as having been rather successful in reducing inflation. In this respect, it seems reasonable to argue that, even under different economic circumstances, such as those currently prevailing in the euro area, the Taylor rule can be a useful reference to the debate on monetary policy.

The operational aspects and the limitations presented in this article must be considered in the analysis of the indications suggested by the Taylor rule. The latter should not be followed mechanically, but as an additional element to be taken into account. In this context it should be noted that, in addition to the limitations of a conceptual and methodological nature associated with the utilisation of the rule, there are situations in which monetary policy decisions are influenced by events not directly related to inflation or the output gap. A good example of this were the three successive cuts in the target for the Federal funds rate undertaken in the second quarter of 1998, in the aftermath of the international financial crisis. The following extract from the minutes of the Federal Open Market Committee meeting held on 29 September 1998 is quite clear in this respect:

*“(...) all the members endorsed a proposal calling for a slight easing in reserve markets to produce a decline of ¼ percentage point in the federal funds rate to an average of about 5¼ per cent.(...) such action was desirable to cushion the likely adverse consequences of the global financial turmoil that had weakened foreign economies and of the tighter conditions in financial markets in the United States that had resulted in part from that turmoil. (...)”*

#### REFERENCES

- Ball, L. (1997) “Efficient rules for monetary policy”, National Bureau of Economic Research, *Working Paper* 5952.
- Banque de France (1999) “Taux de taylor et taux de marché de la zone euro”, *Bulletin de la Banque de France*, no. 61, January.
- Barro, R. and Gordon, D. (1983) “Rules, discretion and reputation in a model of monetary policy”, *Journal of Monetary Economics*, no. 12.
- Bernanke, B. and Blinder, A. (1992), “The federal funds rate and the channels of monetary transmission”, *The American Economic Review*, September.
- Bernanke, B. and Mihov, I. (1996) “What does the Bundesbank target?”, National Bureau of Economic Research, *Working Paper* 5764.
- Buiter, W. (1981) “The superiority of contingent rules over fixed rules in models with rational expectations”, *Economic Journal*, Volume 91.
- Christiano, L. (1991) “Modeling the liquidity effect of a money shock”, Federal Reserve of Minneapolis, *Quarterly Review*, Winter.
- Christiano, L. and Gust, C. (1999) “Taylor rules in a limited participation model”, *mimeo*.
- Clarida, R. and Gertler, M. (1996) “How the Bundesbank conducts monetary policy”, National Bureau of Economic Research, *Working Paper* 5581.
- Clarida, R., Galí, J. and Gertler, M. (1997) “Monetary policy rules in practice: some international evidence”, Centre for Economic Policy Research, *Discussion Paper* 1750.
- Clarida, R. and Gertler, M. (1998) “Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory”, National Bureau of Economic Research, *Working Paper* 6442.
- Clarida, R., Galí, J. and Gertler, M. (1999) “The science of monetary policy: a new keynesian perspective”, Centre for Economic Policy Research, *Discussion Paper* 2139.
- Deutsche Bundesbank (1999) “Taylor interest rate and Monetary Conditions Index”, *Monthly Report*, April.
- Fuhrer, J. and Moore, G. (1995) “Monetary policy trade-offs and the correlation between nominal interest rates and real output”, *American Economic Review*, no. 85, March.
- Gerlach, S. and Schnabel, G. (1999) “The Taylor rule and average interest rates in EMU-11 area: a note”, Bank for International Settlements, *mimeo*.
- Goodhart, C. (1995) “Why do the monetary authorities smooth interest rates?”, European Monetary Policy, edited by Stefan Collignon, Association for the Monetary Union of Europe.
- Judd, J. and Rudebusch, G. (1998) “Taylor’s rule and the Fed: 1970-1997”, Federal Reserve Bank of San Francisco, *Economic Review*, no. 3.

- Kozicki, S. (1999) "How useful are Taylor rules for monetary policy?", Federal Reserve Bank of Kansas City, *Economic review*, Volume 84, no. 2.
- Kydland, F. and Prescott, E. (1977) "Rules rather than discretion: the inconsistency of optimal plans", *Journal of Political Economy*, no. 85.
- McCallum, B. (1988) "Robustness properties of a rule for monetary policy", *Carnegie-Rochester Conference Series on Public Policy*, Volume 29.
- Murchison, S. and Siklos, P. (1997) "Central bank reaction functions in OECD economies: are they informative about the conduct of monetary policy?", *mimeo*.
- Orphanides, A. (1999) "The Quest for Prosperity Without Inflation", *Working Paper*, Federal Reserve Board.
- Peersman, G. and Smets, F. (1998) "The Taylor rule: a useful monetary policy guide for the ECB?", paper presented in the conference of the Bank of Italy on "Monetary policy of the ESCB: strategic and implementation issues", held on 6 and 7 July 1998.
- Rotemberg, J. and Woodford, M. (1998) "Interest-rate rules in an estimated sticky price model", *mimeo*.
- Sack, B. and Wieland, V. (1999) "Interest-rate smoothing and optimal monetary policy: a review of recent empirical evidence", European Central Bank, *mimeo*.
- Smets, F. (1998) "Output gap uncertainty: does it matter for the Taylor rule?", Bank for International Settlements, *Working Papers*, no. 60, November.
- Taylor, J.B. (1993) "Discretion versus policy rules in practice", *Carnegie-Rochester Conference Series on Public Policy*, no. 39.
- Taylor, J.B. (1999a) "The robustness and efficiency of monetary policy rules as guidelines for interest rate setting by the European Central Bank", *Journal of Monetary Economics*, Volume 43, no. 3, June.
- Taylor, J.B. (1999b) "A Historical Analysis of Monetary Policy Rules", *Monetary Policy Rules*, edited by J.B. Taylor. National Bureau of Economic Research.

#### Box – TAYLOR RULES WITHIN THE SCOPE OF LIMITED PARTICIPATION MODELS

*Most of the works published in this field assess monetary policy rules within the framework of IS-LM models, with rational expectations and rigid prices. As an alternative to the conventional approach, Christiano and Gust (1999) study Taylor rules performance within the scope of the so-called limited participation models [see Christiano (1999)]. The limited participation models are different from those usually utilised in two key aspects. On the one hand, it is a credit market friction that implies the non-neutrality of monetary policy. On the other hand, the transmission of inflation expectations to output is different from the one admitted in traditional models. A self-sustained rise in inflation expectations has a depressive effect on the economic activity, while it has an expansionary effect on conventional models.*

*Following the IS/LM tradition, in conventional models an increase in expected inflation reduces the real interest rate, stimulating the components of aggregate demand which are sensitive to the interest rate. Considering that both the expected inflation and the output gap increase, a restrictive monetary policy is appropriate, preventing inflation expectations from becoming self-sustained. Therefore, sufficiently high  $\phi$  and  $\beta$  avoid the emergence of equilibria in which inflation expectations are self-sustaining. On the contrary, in the limited participation models a higher expected inflation leads to a replacement of financial assets with physical assets, giving rise to cash shortage in the financial sector and an upward pressure on interest rates. With a small  $\beta$ , the monetary authority supplies sufficient liquidity to moderate interest rate increases, leading to the inflation rise anticipated by agents. Thus, in line with the conventional literature, a high  $\beta$  reduces the probability of inflation expectations being self-sustaining. On the other hand, it has to be taken into consideration that interest rate increases, due to expectations of a higher inflation, have a recessive effect on the economy. Therefore, with a sufficiently high  $\phi$  coefficient, the narrowing of the output gap may offset the direct effect of inflation increases on the interest rate, the inflation expectations becoming self-sustained. Christiano and Gust thus claim that the possibility of existing equilibria with self-sustained inflation expectations is eliminated when the interest rate reacts aggressively to inflation and does not (or virtually does not) react to the output gap.*

## QUANTITY VERSUS QUALITY: THE GROWTH ACCOUNTING IN IRELAND\*

*Miguel Lebre de Freitas\*\**

### 1. INTRODUCTION

Recent studies on the Irish economic performance have laid little emphasis on its comparison with other countries. This paper is intended to fill this gap, by analysing growth in Ireland in the light of the differences between this country and the Iberian countries. Portugal and Spain, as well as Ireland are integrated in the same economic area, having a comparable level of development. Since there are no significant differences among the political regimes and the economic systems in these three countries, the comparison of the policies pursued may shed some light on the causes behind economic progress in Ireland over recent years.

Section 2 quantifies the contribution of labour, capital and total productivity to growth in the three countries. This analysis enables us to distinguish a transitory component in recent growth in Ireland, related to convergence towards full employment, and a long-term component. Section 3 discusses the extent to which the transitory component is related to the change in the fiscal policy stance in the second half of the 1980s. Section 4 analyses long-term growth in Ireland, taking into account the move towards increasing economic openness, started at the end of the 1950s, supported by foreign capital, and the developments that have since occurred in the physical, human and institutional infrastructures. Section 5 concludes.

\* The views expressed in this paper are those of the author and not necessarily those of the Banco de Portugal.

\*\* University of Aveiro and Banco de Portugal. I am grateful for the comments and suggestions of Michael Casey, Isabel Horta e Costa, Thorvaldur Gylfason, José Ferreira Machado, Maximiano Pinheiro and Daniel Traça.

### 2. GROWTH ACCOUNTING

Ireland has been growing at a faster pace than the Iberian countries since the first oil crisis (table 1). From 1974 to 1998, the average growth rate in Ireland stood at around 4.8 per cent compared with 3.5 per cent in Portugal and 2.6 per cent in Spain<sup>(1)</sup>. In the three countries growth was boosted by exports, which expanded at an average rate of 10.1 per cent, 5.9 per cent and 7.0 per cent respectively over the same period. Growth in Ireland accelerated significantly in the 1994-98 sub-period, having reached a trend growth rate of around 7.2 per cent per year.

In table 1, output growth in Portugal, Spain and Ireland is compared with the accumulation of labour and capital. In the interpreting of the data, it is important to take into account the way in which they are defined. In particular, since labour is measured by the number of workers and the capital stock is derived from data on aggregate investment, these series do not capture differences or changes in the quality of inputs. Hence, the evidence that the capital stock has been growing at a more moderate pace in Ireland than in the Iberian countries, while labour productivity has been growing faster, is largely due to reflect different paths regarding the quality of inputs.

In table 2, the output growth per capita (income in the case of Ireland) is broken down into labour contribution, capital labour ratio and Solow residual. The exercise shows that a significant share of growth in Ireland is not accounted for by a simple accumulation of factors. From 1974 to 1998, the Solow residual was around 2.7 per cent, corre-

(1) Except where otherwise stated, all data mentioned in this paper were provided by OECD (1999b).

Table 1

**OUTPUT, EMPLOYMENT AND  
CAPITAL STOCK**

Annual average rates of change

	1964-73	1974-83	1984-93	1994-98
<b>Ireland</b>				
GDP.....	4.6	3.7	4.7	7.2
Employment.....	0.1	0.3	0.8	3.6
Capital stock.....	1.4	3.3	2.7	3.1
Memo:				
Labour productivity.....	4.5	3.4	3.9	3.4
<b>Spain</b>				
GDP.....	6.2	2.5	2.7	2.5
Employment.....	0.7	-0.6	0.6	1.1
Capital stock.....	12.6	5.6	4.1	3.8
Memo:				
Labour productivity.....	5.5	3.2	2.2	1.4
<b>Portugal</b>				
GDP.....	5.7	3.6	3.7	2.9
Employment.....	0.9	0.6	0.9	0.7
Capital stock.....	12.8	6.3	4.6	4.0
Memo:				
Labour productivity.....	4.7	3.0	2.7	2.1

Sources: OECD (1999b) and Banco de Portugal. All series were filtered by the HP. Capital stock series on Ireland and Spain refer only to the business sector. Average labour productivity is measured by the GDP-employment ratio, with the former valued at market prices, because there are no comparable series at factor costs.

sponding approximately to 56 per cent of the output growth<sup>(2)</sup>. This figure is very high by international standards<sup>(3)</sup>. Over the same period, the Solow residual accounted for only 4 per cent of growth in Spain and 16 per cent in Portugal. The main growth factor in the Iberian countries has been the volume of capital (92 per cent in Spain and 73 per cent in Portugal against 31 per cent in Ireland). In brief, the long run evidence is that there are significant qualitative differences between the growth paths in Ireland and in the Iberian countries.

(2) These results are not much different from those obtained by Kenny (1996). For the 1970-96 period Kenny obtained an average residual of 2.4 per cent (59 per cent of growth), while our calculations point to an average of 2.8 per cent (60 per cent of growth). Specifying the same labour share as Kenny (1996), i.e. 32 per cent, we would have obtained in our sample a Solow residual equal to 2.4 per cent (51 per cent of growth) for the same period.

(3) According to Gylfason (1999), the growth of total factor productivity over the past 30 years recorded an annual rate of 1.3 per cent (33 per cent of growth) in seven OECD countries and 1.2 per cent (13 per cent of growth) in South-eastern Asia.

Table 2

**IRELAND: EXOGENOUS GROWTH  
ACCOUNTING**

Annual average rates of change

	1964-73	1974-83	1984-93	1994-98
<b>Ireland</b>				
Participation rate.....	-0.7	0.1	0.4	2.2
Employment rate.....	0.0	-1.1	0.3	0.6
Labour productivity.....	4.5	3.4	3.9	3.4
of which:				
K/L contribution.....	0.6	1.5	1.0	-0.3
Solow residual.....	3.8	2.0	2.9	3.7
Net factor income adjustment..	-0.2	-0.8	-0.6	-0.7
Per capita income.....	3.6	1.6	3.9	5.6
<b>Spain</b>				
Participation rate.....	-0.2	-0.3	0.9	0.7
Employment rate.....	-0.2	-1.2	-0.6	0.2
Labour productivity.....	5.5	3.2	2.2	1.4
of which:				
K/L contribution.....	6.2	3.2	1.8	1.4
Solow residual.....	-0.7	-0.1	0.4	0.0
Per capita GDP.....	5.1	1.6	2.5	2.4
<b>Portugal</b>				
Participation rate.....	1.3	-0.2	0.7	0.9
Employment rate.....	-0.2	-0.3	0.1	-0.3
Labour productivity.....	4.7	3.0	2.7	2.1
of which:				
K/L contribution.....	5.8	2.8	1.8	1.6
Solow residual.....	-1.1	0.2	0.9	0.5
Per capita GDP.....	5.8	2.4	3.5	2.8

Sources: Data derived from OECD (1999b) series and Banco de Portugal, taking growth rates in  $(Y/N) = (A/N)(L/A)(Q/L)(Y/Q)$  and using  $(Q/L) = B(K/L)^{1-\alpha}$ , where  $Y$  is national income,  $Q$  GDP,  $N$  total population,  $A$  labour force,  $L$  the employment level,  $B$  technology and  $\alpha$  the share of labour in national income (for Spain and Portugal, income was not included in the breakdown). The employment rate  $(L/A)$  measures the population employed as a percentage of the labour force. The Solow residual  $(\Delta B/B)$ , obtained residually, measures the share of the growth of labour productivity which is not explained by the increase in the capital labour ratio, reflecting namely technological progress and the increase in the quality of inputs. The labour shares used correspond to the average figures for the period, i.e. 51 per cent for Ireland and Portugal and 48 per cent for Spain. The original output, income, employment and capital stock series were filtered by the HP.

The figures displayed in table 2 also reveal that the acceleration of growth in Ireland in 1994-98 largely reflects a higher use of labour. Due to the rise in both the participation rate (2.2 per cent) and the employment rate (0.6 per cent) from 1994 to 1998, it was possible to record annual increases in per capita income as high as 5.6 per cent while la-



hour productivity only increased by 3.4 per cent (see also chart 1)<sup>(4)</sup>

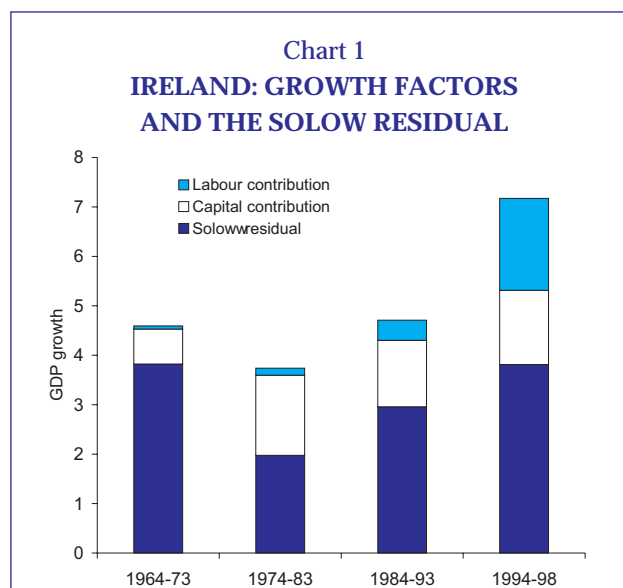
This evidence suggests that the acceleration of growth in 1994-1998 was the result of a transition process from a state of underutilisation of the existing human resources to a state of higher utilisation of such resources<sup>(5)</sup>. Throughout this process, the increase in the labour force (resulting from exceptional demographic circumstances and also from factors endogenous to growth itself)<sup>(6)</sup> contributed to widening the resources constraint of the economy. However, as the level of activity stabilises and the remaining unemployment is eliminated, the output growth is likely to return to its long-term level.

The observation that growth rates of the order of those recorded in Ireland in 1994-98 were only possible due to the existence of available human resources enables to qualify the acceleration of growth as transitory, but obviously it does not explain it. In Spain, for instance, human resources have not been a constraint to growth, but the results obtained in the employment area have been much different from those observed in Ireland (chart 2). With regard to Portugal, data suggest that a surge of growth similar to that observed in Ireland in 1994-98 could not have occurred<sup>(7)</sup> This analysis suggests two lines of discussion:

(4) Due to filtering, the employment growth rate appearing in table 2 is underestimated. The actual employment growth rate in 1994-98 was 4.9 per cent per year (26.8 per cent in the same period), broken down into an increase in the participation rate (2.2 per cent), in the employment rate (1.8 per cent) and in population (0.8 per cent).

(5) For the economic growth of Ireland from the beginning of this century until the 1990s and, particularly, for the causes of high emigration and low participation, see Ó Gráda and O'Rourke (1995).

(6) The increase in the participation rate between 1994 and 1998 (2.2 per cent per year) may be broken down into (i) increase in the weight of working age population (0.9 per cent per year), as a result of a belated baby boom, with a peak in 1980 and which, according to the OECD (1999a), is bound to have repercussions up to 2011; (ii) higher participation among working age population (1.3 per cent per year), due to the increase in real wages (see Section 3). These include the increase in women participation (also pushed by the cultural transformation in process) and, more recently, the reversal of migrating flows. According to the OECD (1999a), the increase in female participation is expected to decelerate in the future, although remaining unchanged up to 2005.



Source: Table 2.



Source: OECD (1999b), population employed as a percentage of the labour force (narrow sense).

— On the one hand, the acceleration of growth and the reduction of unemployment in the 1990s (transitory component) suggest a relevant role for the economic policy shift that

(7) The conclusion above relies on employment rate figures. As to the participation rate, in 1998 the ratio of working population to the working age population (between 15 and 64 years of age) was 62 per cent in Spain, 66 per cent in Ireland, 67 per cent in France, 68 per cent in Portugal, 76 per cent in the UK and 78 per cent in US and Japan (OECD, 1999b). These figures suggest that there is some room for improvement in the three countries under analysis, although the observation remains that Spain has a higher growth potential.

occurred in the mid-1980s. This issue is discussed in Section 3.

- On the other hand, the growth of total factor productivity over the past 40 years (permanent component) must be analysed in the light of the strategy of openness pursued and infra-structure endowments. These aspects are discussed in Section 4.

### 3. THE CONTRIBUTION OF FISCAL POLICY

In the 1970s the systematic recourse to the budget to promote employment in Ireland led to a continued rise in the Government debt. When Ireland joined the European Monetary System (EMS) (in 1979), the direct government debt amounted to 71 per cent of GDP (compared with 56 per cent in 1974), fuelling fears of instability.

During the first half of the 1980s, while seeking to reduce inflation in order to validate the exchange rate system, the government endeavoured to improve its financial position by raising fiscal revenue. From 1979 to 1988, total taxes and social security contributions increased from 30 per cent to 38 per cent of GDP. However, the deficit reduction was negligible, due to high interest payments. With the increase in taxation, the economy stagnated, the unemployment rate increased to 17 per cent and the government debt continued to widen, reaching 118 per cent of GDP in 1988<sup>(8)</sup>.

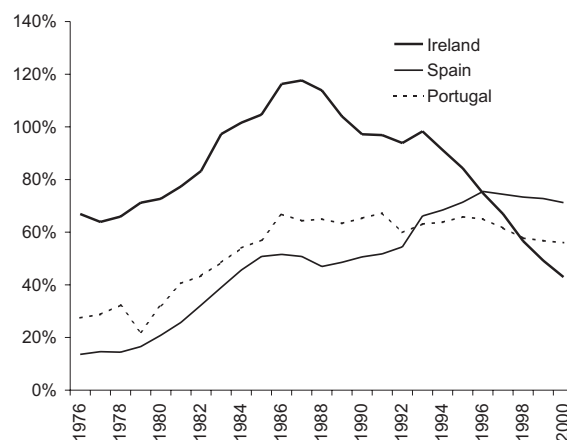
After 1987, the government financial crisis was fought by means of expenditure cuts. From 1987 to 1990 current expenditure recorded a real cumulative drop of 17 per cent (European Commission, 1996)<sup>(9)</sup>. In 1988, the government debt started to decline and is expected to fall to around 40 per cent of GDP in 2000.

Although Portugal and Spain have also made significant fiscal adjustments, the one imple-

(8) The recessive effect caused by the high marginal tax rates prevailing in 1981-86 led some authors to argue that, instead of a fast inflation reduction, it would have been preferable to maintain temporarily some level of monetary financing, while a fiscal reform was being prepared (Dornbusch, 1989).

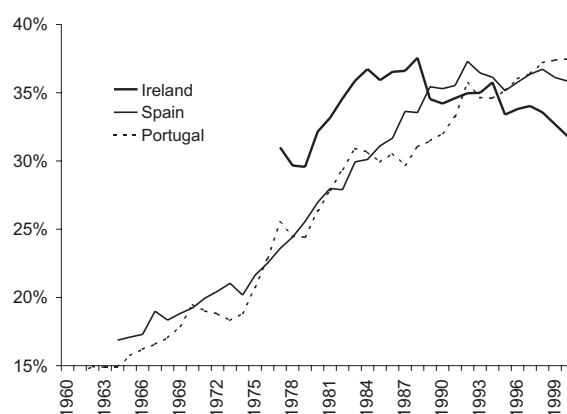
(9) According to the same source, the cut in current expenditure from 1987 to 1990 is likely to have reached approximately 8 per cent of GDP, 2.8 per cent of which in current transfers (from 16.9 per cent to 14.1 per cent), 2 per cent in public consumption (from 17.0 per cent to 15.0 per cent) and 1.4 per cent in interest payments (from 9.2 per cent to 7.8 per cent).

Chart 3  
GROSS GOVERNMENT DEBT  
As a percentage of GDP



Source: OECD (1999b).

Chart 4  
TOTAL TAXES AND SOCIAL SECURITY  
CONTRIBUTIONS  
As a percentage of GDP



Source: OECD (1999b).

mented in Ireland was more ambitious. Not only because the initial debt was relatively higher (chart 3), but also because the adjustment relied on expenditure cuts. In contrast to Portugal and Spain, Ireland was able to reconcile the deficit reduction with a decrease in the average rates of taxation (chart 4).

The fact that the Irish economy has expanded following cuts in government current expenditure led some authors to argue that this was a case of "expansionary fiscal contraction" (Giavazzi and Pagano, 1990, McAleese, 1990). According to this



Table 3

**SOCIAL SECURITY CONTRIBUTIONS AND  
PERSONAL INCOME TAX, NET OF TRANSFERS,  
AS A PERCENTAGE OF WAGE COSTS**

	1979	1985	1989	1991	1995	1997
Ireland . . . . .	33.9	42.4	40.6	39.8	36.9	33.9
Spain . . . . .	36.4	36.6	35.9	36.5	38.5	39.0
Portugal . . . . .	28.1	34.9	33.9	33.2	33.7	33.9

Source: ECD (1998b). Figures are derived from average wages and the tax regime applicable to single tax payers.

argument, the reduction of public consumption leads private agents to anticipate lower taxes in the future and therefore to increase expenditure. Following this argument, such an increase could more than offset the fall in government consumption. Bradley and Whelan (1997), however, did not find empirical support for this idea.

Whatever the impact of fiscal policy on demand, there are supply-side effects that enable us to revert to the idea of “expansionary fiscal contraction”. Indeed, a lower level of taxation may be associated with smaller distortions and therefore with higher productive efficiency at an aggregate level<sup>(10)</sup>.

The reduction of the tax burden seems to have had a significant impact on the labour market. Table 3 presents the recent evolution of direct income taxes and social security contributions, as a percentage of wage costs. In Ireland, the tax burden increased between 1979 and 1985, and decreased again to reach, in 1997, the 1979 level. Spain has recorded an increasing trend, while in Portugal it has remained unchanged since 1985.

In Ireland, the government has reduced income taxes and social security contributions as a counterpart to wage moderation since 1988, when collective bargaining started to be based on social agreement. The exercise presented in table 4 reveals that this strategy has been successful in lowering unit labour costs, while the workers' purchasing power was increasing<sup>(11)</sup>.

In a country where, historically, labour supply has revealed high elasticity, the decrease in the tax burden may have played an important role in

Table 4

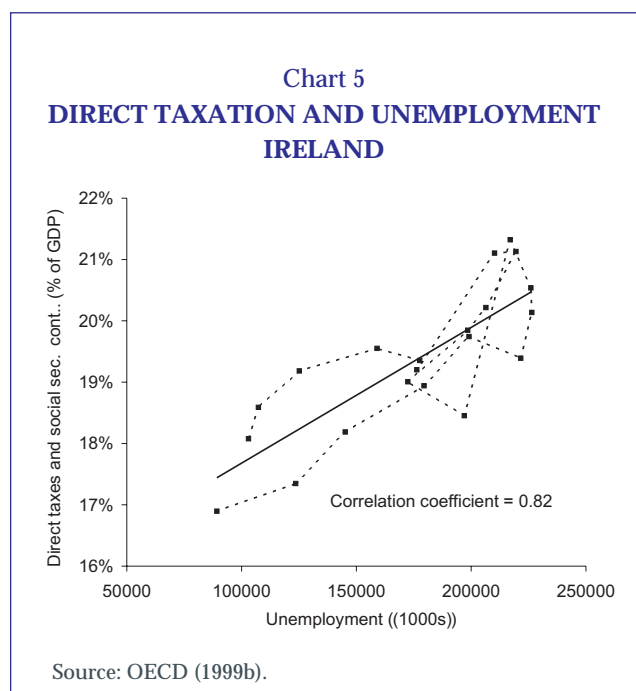
**UNIT LABOUR COSTS  
Annual average rate of change**

	1981-85	1986-90	1991-95	1996-97
<b>Ireland</b>				
Labour productivity . . . . .	4.0	3.6	3.5	4.3
Real compensation per employee . . . . .	2.0	1.7	3.1	3.0
of which:				
Income and social sec. contribution . . . . .	2.8	-0.7	-1.1	-2.3
Real take home-pay. . . . .	-1.0	2.4	3.8	6.3
Relative price adjustment. . . . .	0.2	0.1	0.4	-0.8
Real unit labour costs . . . . .	-2.0	-1.8	-0.4	-1.3
<b>Spain</b>				
Labour productivity . . . . .	3.2	1.5	2.4	0.8
Real compensation per employee . . . . .	1.1	2.0	1.7	1.1
of which:				
Income and social sec. contribution. . . . .	0.1	-0.1	0.7	0.4
Real take home-pay. . . . .	0.5	2.8	0.8	0.3
Relative price adjustment . . . . .	0.5	-0.7	0.2	0.3
Real unit labour costs . . . . .	-2.0	0.5	-0.6	0.3
<b>Portugal</b>				
Labour productivity . . . . .	-0.2	3.0	3.1	2.2
Real compensation per employee. . . . .	-1.7	2.3	2.9	2.2
of which:				
Income and social sec. contribution . . . . .	2.0	-0.4	0.0	0.2
Real take home-pay. . . . .	-4.3	3.9	3.2	2.2
Relative price adjustment. . . . .	0.8	-1.1	-0.3	-0.1
Real unit labour costs . . . . .	-1.5	-0.6	-0.1	0.0

Source: Figures derived from OECD (1999b) series and data from table 3. Figures obtained taking growth rates in  $\alpha = (W/P)/(Q/L)$  and replacing  $W/P = (W/W_N)(W_N/P_C)(P_C/P)$ , where  $W$  is the compensation per employee,  $L$  employment,  $Q$  GDP,  $W_N$  the net wage received by workers,  $P$  the GDP deflator and  $P_C$  the consumption deflator. The taxation levels in 1980 and 1990 were assumed to be equal to those in 1979 and to the 1989-91 average respectively. GDP series and the respective deflator are at market prices, because there are no comparable data at factor cost.

(10) Moreover, since the government debt is now lower in Ireland, its stabilisation in the future will be consistent with a combination “tax burden-public service”, potentially more attractive than in the Iberian countries.

(11) Since these are average figures, data in Table 4 mask important changes occurred in the structure of direct taxation, which together with the adjustment of the social protection schemes also led to the reduction of disincentives to participation.



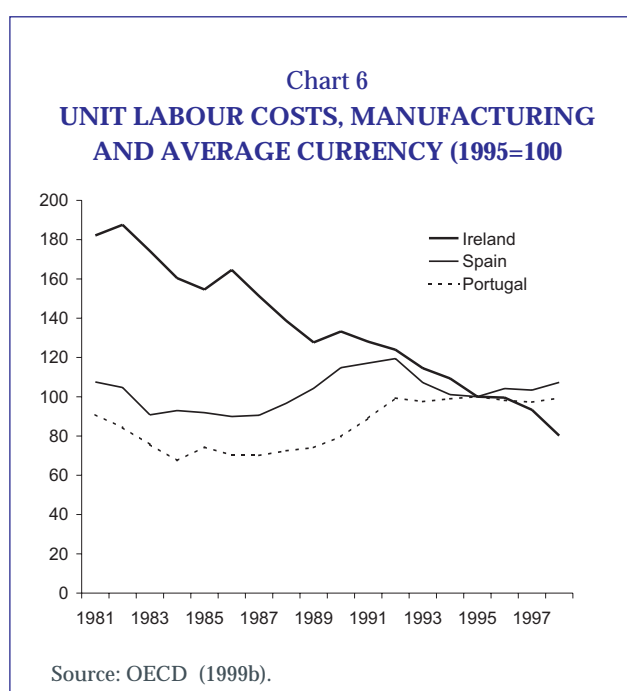
reducing structural unemployment<sup>(12)</sup>. This view is partly supported by the high correlation (82 per cent) observed in Ireland between the number of persons unemployed and the level of direct taxation in 1980-2000 (chart 5)<sup>(13)</sup>.

In Spain, unit labour costs have shown a broadly unchanged pattern and the rises in the tax burden have been reflected in a stagnation of workers' purchasing power. In addition to the explanations given for the high level of unemployment in Spain — namely, the high bargaining power of labour unions (Bover et al, 1999) and the existing high level of social protection (Blanchard and Jimeno, 1995) — one might add that income taxation, by creating increasing distortions in the labour market, is not contributing to the eradication of structural unemployment.

The sharp reduction in unit labour costs in Ireland has been improving external competitiveness

(12) The high elasticity of labour supply in Ireland is related to the integration of the Irish labour market with the UK labour market (see, for instance, Honohan, 1992) and has been recently confirmed by the reversal of migrating trends. Building on different estimates for the elasticities of labour demand and supply, Walsh (1998) simulated the impact of direct taxation in Ireland and concluded that the impact on employment would be potentially high.

(13) Note that, since tax revenues are generally pro-cyclical, the expected correlation would be negative. Since the opposite occurred, the thesis according to which the tax reduction might have had a significant impact on the employment level is obviously reinforced.



(chart 6), thus also contributing to explain the recent growth boom, triggered by exports. In the case of Ireland, the improvement of competitiveness has an additional effect, as multinational companies tend to reallocate production internationally to where wage costs are lower.

#### 4. THE ADVANTAGE OF BEING EFFICIENT

The input-output approach underlying the Solow decomposition is useful to quantify the increase in the quality of factors, but it does not point towards any explanation. As an alternative, a growth accounting exercise in light of the well-known AK model is presented in table 5. Despite being simple, this model is versatile enough to capture the role of the different sources of growth identified by the Theory of Endogenous Growth<sup>(14)</sup>.

Figures displayed in table 5 suggest that the faster growth of the Irish economy does not result from exceptional saving rates, but rather from a higher quality of the capital employed, measured by both its higher average productivity and smaller economic depreciation.

(14) For example, the role of the saving rate, the dynamic benefits of physical capital accumulation, the role of human capital and the economic size of the government are described in the light of the AK model by Barro and Sala-i-Martin (1995), chapter 4.

Table 5

## IRELAND: ENDOGENOUS GROWTH ACCOUNTING

	Ireland				Spain	Portugal
	1964-73	1974-83	1984-93	1994-98	1984-98	1984-98
Efficiency .....	0.37	0.44	0.47	0.59	0.51	0.36
Investment ratio.....	17.35	20.46	18.32	17.63	23.17	24.43
Depreciation rate.....	1.92	5.21	3.85	3.31	9.20	5.33
GDP growth .....	4.59	3.74	4.71	7.17	2.66	3.40

Sources: Figures derived from OECD (1999b) and Banco de Portugal series, using the Harrod-Domar equation. Calculations are made assuming a linear relationship between GDP,  $Q$ , and the capital stock,  $K$ ,  $Q=AK$  and replacing the efficiency level  $A$  in the equation describing growth,  $g = sA - \delta$ , where  $g$  is the rate of economic growth,  $s$  is the total saving rate (domestic and external) and  $\delta$  is the capital depreciation rate, obtained as a residual (the method follows Gylfason, 1999). The series on GDP, gross investment and capital stock were filtered by the HP. The capital stock series refer only to the private sector, whereby this exercise overestimates the quality of capital when measured by the efficiency level and underestimates it when measured by the depreciation rate.

In interpreting these data, it should be taken into account that the efficiency in the use of capital not only depends on externalities associated with investment in physical capital, but also on important policy issues, such as macro-economic stability, removal of distortions, support to education and research, provision of infrastructures, transparency and efficiency of laws and the development of institutions. These factors not only affect the investment level, but also the manner in which economic resources are combined. In the light of theory, a higher efficiency level impacts both on a higher per capita income and on higher growth rates in the long run.

A first conclusion can be directly drawn from the previous discussion: in so far as the recent reduction in direct taxes has contributed to an increased productive efficiency, the case of Ireland may come to show that the reduction of the weight of the government on the economy, may have a positive impact on the pace of economic growth<sup>(15)</sup>.

(15) This idea of “expansionary fiscal contraction” in a supply-side and dynamic version is based on Barro and Sala-i-Martin, 1995, chapter 4.4. The increase in the weight of the government on the economy affects growth by two different means: on the one hand, there is a distortion that increases with the taxation level, decreasing the average efficiency in the capital utilisation. On the other hand, a higher provision of public goods increases aggregate efficiency. When the weight of the government on the economy is very heavy, the first effect dominates the second, whereby a smaller intervention will have a positive impact on growth.

From a more historical point of view, data in table 5 suggest two lines of discussion:

- On the one hand, it may be questioned to what extent the type of investment made in Ireland has been more favourable to externalities and dynamic benefits than the one made in the Iberian countries. This issue is discussed in Section 4.1.
- On the other hand, it should be analysed whether differences in physical, human and institutional infrastructures may help to explain the different growth path observed. Section 4.2 provides some evidence thereon.

#### 4.1 The quality of investment

Table 6 displays the breakdown of gross fixed capital formation (GFCF) by nature in the three countries. This analysis could be illustrative, if for

Table 6

#### GROSS FIXED CAPITAL FORMATION BY NATURE 1986-95 average, as a percentage of GDP

	Ireland	Spain	Portugal
Construction.....	9.3	14.4	13.0
Transport equipment .....	2.9	2.1	4.1
Machinery .....	4.4	4.9	7.6
Other .....	0.2	0.6	2.4
Total.....	16.7	22.0	27.1

Sources: OECD (1998a) and Banco de Portugal.

Table 7

**GFCF BY INSTITUTIONAL SECTOR**  
1986-95 average, as a percentage of GDP

	Ireland	Spain	Portugal
General government . . .	2.3	3.9	3.6
Private sector . . . . .	14.4	18.1	23.5
Total . . . . .	16.7	22.0	27.1

Sources: OECD (1998a) and Banco de Portugal.

Table 8

**FOREIGN DIRECT INVESTMENT**  
As a percentage of GDP

	1975-84	1985-94	1995-98	Average
Million US dollars:				
Ireland . . . . .	220.1	577.5	2515.8	751.6
Spain . . . . .	1272.1	8269.5	7400.8	5209.1
Portugal . . . . .	119.6	1337.2	1592.3	872.4
Percentage of GDP:				
Ireland . . . . .	1.5	1.3	3.5	1.7
Spain . . . . .	0.8	2.0	1.3	1.4
Portugal . . . . .	0.5	2.0	1.5	1.3

Source: Calculations derived from IMF - International Financial Statistics data.

Table 9

**INCENTIVES TO FOREIGN INVESTMENT**  
Rank of 46 countries

	Ireland	Spain	Portugal
Incentives to foreign investment . . . . .	1	10	6
Memo:			
Image of the country abroad . .	9	27	31

Source: The World Competitiveness Yearbook, 1997. Figures indicate, for each item, the rank of each country in a group of 46 countries.

instance Ireland showed a higher propensity to invest in machinery than the Iberian countries<sup>(16)</sup>. Despite the aggregation level, it is nonetheless curious to observe that Ireland has invested less per unit of output, not only in aggregate terms, but also in each specified category.

Table 7 displays the breakdown of GFCF by institutional agent. Considering that investment in Ireland was lower in both categories, at least at

(16) De Long and Summers (1991), for instance, give a high explanatory power to investment in equipment as a promoter of growth.

Table 10

**SECTORAL BREAKDOWN OF FOREIGN DIRECT INVESTMENT**  
1990-1997 average

	Ireland	Spain	Portugal
Industry . . . . .	92.9	45.3	18.7
of which:			
Chemical, petroleum and plastic products . . . . .	16.2	11.7	n.a.
Metal products and machinery . . . . .	58.3	0.0	n.d.
Trade and repairs . . . . .	0.0	10.3	15.0
Financial activities . . . . .	0.0	21.8	29.5
Real estate and business activities . . . . .	0.0	18.1	24.6
Other . . . . .	7.1	4.5	12.2
Total . . . . .	100.0	100.0	100.0

Source: OECD (1998c). In Portugal and Spain the weight of the real estate sector corresponds to the 1993-97 average.

first sight, the possible difference in quality cannot be imputable to an excessively prominent role played by the government.

A factor that has been considered to be behind the Irish economic success is the high level of foreign direct investment. Table 8 shows that in recent years (1995-98) there was an acceleration of foreign investment in Ireland which contrasts with some stagnation or even decline in the Iberian countries. However, data for the whole sample are not conclusive: both Portugal and Spain have also been successful in attracting foreign investment, possibly due to the competitiveness of the incentives granted (table 9).

At the sectoral level, however, there are significant differences. Table 10 shows that 93 per cent of Foreign Direct Investment made from 1990 to 1997 in Ireland was intended for the manufacturing sector, in particular, for machinery and metal products industries (58 per cent), and for the chemical industry (16 per cent). Over the same period, foreign direct investment in Portugal and Spain was distributed by a much wider range of sectors<sup>(17)</sup>.

(17) Due to differences in accounting standards these data have to be interpreted with caution. In Portugal, the item "business activities" includes asset management activities, and therefore some foreign investment in industry may be recorded in this item. However, differences in levels are sufficiently high to support the above conclusion.

Table 11

## COMPOSITION OF GFCF BY SECTOR OF ACTIVITY

	Ireland		Portugal	
	1986-90	1991-94	1986-90	1991-95
Agriculture and fishing.....	10.1	8.8	5.5	2.9
Manufacturing .....	19.4	17.8	21.6	14.2
of which:				
Textile, clothing and footwear.....	0.9	0.4	5.6	2.5
Chemicals, plastic products and rubber.....	3.6	5.0	1.6	1.7
Metal products, machinery and equipment.....	4.9	5.9	2.9	3.0
Electricity, gas and water .....	4.1	4.8	1.7	1.3
Construction.....	2.3	1.9	4.7	4.8
Wholesale and retail trade, hotels and restaurants .....	7.1	6.1	6.7	8.0
Transport and communications .....	13.2	14.5	10.4	7.3
Financial institutions.....	4.8	3.0	2.9	3.4
Real estate and business services .....	24.7	29.1	33.1	40.7
Personal, community and government services.....	14.2	14.0	13.3	17.4
Gross Fixed Capital Formation .....	100.0	100.0	100.0	100.0

Source: OECD (1999b). The item "Manufacturing" includes mining industries and the item "Community, social and personal services" includes services rendered by non-profit institutions serving households.

Table 11 compares the sectoral breakdown of GFCF in Ireland and Portugal (Spain is not analysed because no comparable data are available). Notwithstanding the aggregation level, it is possible to detect a higher concentration of investment in manufacturing in Ireland (where chemical, metal and machinery industries increased their share in total investment) and also in transport and communications, unlike Portugal, where the real estate sector and some services increased their shares. In Ireland, the manufacturing sector and the distribution, transport and communications sector jointly account for around half of the output and have been the most buoyant sectors of the economy, with average growth rates of 12.5 per cent and 9.7 per cent per year in 1991-98 respectively (IMF, 1999).

According to some authors (such as Barry, 1996, Leddin and Walsh, 1997, and the European

Commission, 1996), the high industrial concentration of foreign investment in Ireland is the reflection of a strategic industrial policy started in the 1960s, intended to attract foreign investment, not at random, but specifically to a selected group of export-oriented industries<sup>(18)(19)</sup>. The result of this strategy was a deep change in the production pattern in Ireland, involving the replacement of national domestically-oriented companies by multinational export-oriented companies<sup>(20)</sup>.

(18) In Ireland, the profit tax applicable to manufactures and some other non-industrial tradable sectors was lowered to 10 per cent in 1981. Tax revenues increased from 1.6 per cent of GDP in 1974-83 to 3.4 per cent in 1994-98, due to the increase of the tax base (in Portugal they increased from 1.6 per cent to 3.1 per cent). In 1999 the profit tax applicable to the other sectors was reduced from 32 per cent to 28 per cent. Within the scope of a commitment undertaken with the European Union in 1998, a single tax rate of 12.5 per cent is due to be implemented by 2003.

(19) Obviously, exogenous factors such as the recent expansion in the US and the cultural affiliation between the two countries help to explain the recent investment boom in Ireland. According to the OECD (1998c), in 1990-97 approximately 70 per cent of foreign investment in Ireland was from the United States.

(20) According to the OECD (1999a), current industrial production of foreign companies represents 30 per cent of GDP in Ireland. According to Barry (1986), from 1982 to 1992, labour productivity grew more rapidly in the "modern" sectors than in the "traditional" ones, as wages evolved in a harmonised manner. According to the author, this may have caused a Dutch disease, affecting the sectors where wages rose faster than productivity, thus leading to an increase in average productivity.

Table 12

EXPORTS IN VOLUME  
As a percentage of GDP

	1964-73	1974-83	1984-93	1994-98
Ireland.....	26.2	35.2	57.7	86.3
Spain.....	10.0	14.5	20.6	32.2
Portugal.....	25.0	19.4	31.1	40.6

Source: OECD (1999b).



Table 13

## QUALITY OF PHYSICAL, HUMAN AND INSTITUTIONAL INFRASTRUCTURES

Rank of 46 countries

	Ireland	Spain	Portugal
<b>Physical infrastructures</b>			
Density of roads . . . . .	15	22	19
Density of railroads . . . . .	16	22	20
International telephone costs (USD) . . . . .	9	10	19
Electricity costs for industrial clients (USD) . . . . .	22	31	40
<b>Human resources</b>			
Illiteracy . . . . .	7	28	39
Availability of skilled labour . . . . .	6	11	35
Availability of qualified engineers . . . . .	9	6	28
Availability of qualified managers . . . . .	4	17	40
Worker motivation . . . . .	17	36	43
Entrepreneurship of managers . . . . .	19	33	43
International experience of managers . . . . .	6	34	41
Quality of educational system . . . . .	2	17	38
Secondary school enrolment . . . . .	7	4	33
Higher education enrolment . . . . .	23	13	31
<b>Political system and institutions</b>			
Political system . . . . .	16	6	18
Transparency of the government . . . . .	18	19	21
Legal system . . . . .	12	16	17
Confidence in Justice . . . . .	13	31	28
Bureaucracy . . . . .	11	21	39
Unlawful practices (e.g. corruption) . . . . .	10	21	23
Prudential regulations . . . . .	19	22	16
Competition laws . . . . .	11	14	32
Flexibility of labour regulations . . . . .	14	36	29
Protection of intellectual property . . . . .	10	20	33

Source: The World Competitiveness Yearbook, 1997. Figures indicate, for each item, the rank of each country in a group of 46 countries.

At a disaggregated level, the IMF (1999) identifies five key subsectors — software, computers, pharmaceutical products, organic chemicals and soft drinks, which in 1991-96 represented only 8 per cent of employment but contributed to 80 per cent of the growth of labour productivity in industry. According to the same source, in 1996 around 95 per cent of the added value in these key sectors was generated by foreign companies (against 54 per cent in the industrial sector as a whole). The high labour productivity in these sectors is largely explained by the need to remunerate intangible assets of multinationals and research expenditure made abroad and has been translated into an increasing divergence between domestic output and national income (table 2)<sup>(21)</sup>.

The question is to find out to what extent the type of investment made in Ireland has been more favourable to an increase in aggregate efficiency.

According to the European Commission (1996), as the domestic outsourcing by multinationals has been low, the demand-side effects of foreign investment have been smaller than expected. But even if this were the case on the demand side, there must have been inevitable significant dynamic effects on the supply side:

(21) Obviously, the need to remunerate non-resident factors makes multinational investments very sensitive to the profit taxation system. On the other hand, the value of production itself and hence the labour productivity measures may be largely overestimated due to “transfer pricing”. In fact, as taxation is lower in Ireland, multinational companies tend to concentrate the taxable income in this country, thus overestimating the local value added. Hence, the figures referred to above should be interpreted with some caution.



- On the one hand, specialisation in specific segments generates agglomeration benefits and learning effects at the industry level.
- On the other hand, foreign investment may have contributed to the sustained rise in the productivity of local workers, through both the accumulation of know-how and technological spillovers, thus contributing to a higher aggregate efficiency <sup>(22)</sup>.

According to the IMF (1999), in 1991-96 the annual growth of total productivity reached 9.5 per cent in the five key sectors and 2.8 per cent in the remaining sectors. Despite the difference in level, both figures are high by international standards.

#### 4.2 The quality of infrastructures

Besides affecting the quality of foreign investment, good physical, human and institutional infrastructures bring about higher productive efficiency at the aggregate level and thus higher economic growth. Table 13 shows the rank of Ireland, Spain and Portugal with regard to a set of indicators, reflecting the quality of physical, human and institutional infrastructures.

Table 13 reveals clearly the higher quality of human resources in Ireland. High investment in education<sup>(23)</sup> and a very young population have given rise to a large number of skilled (and flexible in terms of contracts) individuals in the labour market, resulting in a fast increase in the average quality of the human capital employed.

In Portugal, both employees and managers exhibit extremely low levels of competence. The shortage of quality human resources conditions the setting up of high technology companies and is an important barrier to the process of economic convergence. A lower average quality of human resources will be associated, not only with lower wages on average, but also with lower wages at the individual level: due to the external effects, each worker will tend to reveal lower productivity

than if inserted in a group with a higher educational level.

With regard to institutions, there are neither significant differences between the economic systems of the three countries, nor different attitudes from the major political parties on fundamental issues such as the property rights or the European integration. However, the gap between Portugal and Ireland is rather symptomatic in areas such as efficiency of the judicial system, bureaucracy level, competition laws, flexibility of labour market regulations and protection of intellectual property <sup>(24)</sup>

#### 5. CONCLUDING REMARKS

The following main conclusions can be drawn from this paper:

- The fast growth of the Irish economy in the 1990s can be seen as the sum of a transitory component and a long-term component.
- The transitory component is the adjustment from a state of high unemployment to a state of low unemployment. This transition is likely to have been induced by the decline in direct taxation.
- In the course of the past 40 years, Ireland grew faster than Portugal and Spain, without having invested more per unit of output. Over 50 per cent of the economic growth in Ireland is due either to an increase in the quality of inputs or to a higher efficiency in production.
- The concentration of foreign investment in a small number of industrial sectors may have had a positive impact on total factor productivity. Although the absolute level of this investment has not been sufficient to increase the capital-labour ratio at the aggregate level (due to low investment levels observed in the local labour-intensive industries), the resulting externalities have probably contributed to an increase in efficiency at the aggregate level.
- The sectoral focus of foreign investment was influenced by the strategic policy followed by the Irish authorities. Portugal and Spain have also been successful in attracting foreign investment, but to a wider range of industries.

(22) Some evidence has recently been presented by O'Malley (1998), but the debate on the existence of significant technological spillovers remains open.

(23) According to Mankiw, Romer and Weil (1992), Ireland was the OECD country that made the largest investment in secondary education in the 1960-1985 period.

— Possibly the major advantage of Ireland vis-à-vis the Iberian countries is the fact that this country has better physical and institutional infrastructures and human resources. This advantage favours the setting-up of high technology companies and contributes per se to a higher level of aggregate efficiency. Ireland is thus likely to maintain higher income and a stronger pace of economic growth in the future.

### REFERENCES

- Barro, R. J. and X. Sala-i-Martin, 1995, *Economic Growth*, McGraw-Hill, New York.
- Barry, F., 1996, "Peripherality in Economic Geography and Modern Growth Theory", *The World Economy* 19 (3), May.
- Blanshard, O. and J. Gimeno, 1995, "Structural Unemployment: Spain versus Portugal", *American Economic Review Papers and Proceedings*, vol. 85 no. 2, May.
- Bradley, J. and K. Whelan, 1997, "The Irish Expansionary Fiscal Contraction: a Tale from one Small European Economy", *Economic Modelling*, 14 (2).
- Bover, O. Pilar García-Pera and Pedro Portugal, 1999, "A comparative Study of the Portuguese and Spanish Labour Markets", *mimeo*, update of a paper presented at the conference "The Portuguese Labour Market in International Perspective" held in July 1997.
- Dornbusch, R. (1989), "Credibility, debt and unemployment: Ireland's failed stabilisation", *Economic Policy* 8, 173-209.
- European Commission, 1996, "The economic and financial situation in Ireland in the transition to EMU", *European Economy* no.1.
- Giavazzi, F. and M. Pagano, 1990, "Can severe fiscal contractions be expansionary? Tales of two small European countries", in: O.J. Blanchard and S. Fischer, eds., *NBER Macroeconomics annual* 1990, The MIT Press, Cambridge, 75-111.
- Gylfason, T., 1999, *Principles of Economic Growth*, Oxford University Press, Oxford UK.
- Honohan, P., 1992, "The link between Irish and UK unemployment", *Quarterly Economic Commentary*, Spring, Dublin: The Economic and Social Research Institute.
- International Monetary Fund, *International Financial Statistics*, various issues, Washington DC.
- International Monetary Fund, 1999, "Staff report for the 1999 Article IV consultation: Ireland", July 14.
- International Institute for Management Development, 1997, *The World Competitiveness Yearbook* 1997, Lausanne, Switzerland, June.
- Kenny, G., 1996, "Economic Growth in Ireland: Sources, potential and inflation", *Central Bank of Ireland Bulletin*, Autumn, pp.43-54.
- Lane, P., 1998, "On the Cyclicity of Irish Fiscal Policy", *Economic and Social Review*, 29 (1).
- Leddin and Walsh, 1997, "Economic Stabilisation, Recovery and Growth: Ireland 1979-96", *The Irish Banking Review*, Summer.
- Mankiw, G., D. Romer and D. Weil, 1992, "A contribution to the empirics of economic growth", *Quarterly Journal of Economics*, 107 (2), 407-37.
- McAleese, D., 1990, "Ireland's economic recovery", *Irish Banking Review*, Summer, 18-32.
- OECD, 1999a, *Economic Surveys: Ireland: 1999*, Paris.
- OECD, 1999b, *Economic Outlook* 65, Paris.
- OECD, 1998a, *National Accounts: 1984-96*, Paris.
- OECD, 1998b, *The tax benefit position of employees: 1997*, Paris.
- OECD, 1998c, *International Direct Investment Statistics Yearbook: 1998*, Paris.
- O'Malley, E., 1998, "The Revival of Irish Indigenous Industry 1987-97", *Quarterly Economic Commentary*, April, pp. 35-62.
- Taylor, G., 1996, "Labour market rigidities, institutional impediments and managerial constraints: reflections on the recent experience of macro-political bargaining in Ireland", *Economic and Social Review*, 27 (3).
- Walsh, B. (1998), "Income tax cuts and inflation in Ireland", *The Economic and Social Review*, 28 (3), 223-231.
- Walsh, B. (1999), "What's in store with the Celtic Tiger?", *The Irish Banking Review*.

### January\*

**11 January (Circular Letter of Banco de Portugal no. 2/DMRCF/CR)**

Informs that it is available on the Website of Banco de Portugal, the list of eligible assets proposed by the Banco de Portugal and accepted by the European Central Bank.

**27 January (Circular Letter of Banco de Portugal no. 4/DMR)**

Informs that, following Circular Letter no. 347/DMR, of 27 October 1999, the rate of return on Certificates of Deposit, Series B, was fixed at 3%, to prevail on the quarter started on 4 February 2000.

### February

**8 February (Regulation no. 5/2000, Supplement to Official Gazette no. 45, Series II of 23 February)**

Under the provisions laid down in no. 2 of Article 5, in Article 212, in no. 2 of Article 351 and in paragraph b) of no. 1 of Article 353 – all of the Stock Market Code, approved by Decree-Law no. 486/99 of 13 November –, regulates the functioning of markets, in general, and of stock markets, in particular. This Regulation comes into force on 1 March 2000.

**8 February (Regulation no. 7/2000, Supplement to Official Gazette no. 45, Series II of 23 February)**

Under the provisions laid down in Article 11 and for the purposes specified in Article 12 of the Stock Market Code, approved by Decree-Law no. 486/99 of 13 November, establishes the legal framework of credit-rating agencies. This Regulation comes into force on 1 March 2000.

**8 February (Regulation no. 8/2000, Supplement to Official Gazette no. 45, Series II of 23 February)**

Under the provisions laid down in no. 4 of Article 265 of the Stock Market Code, approved by Decree-Law no. 486/99 of 13 November, lays down the rules applicable to contango and securities lending operations, and exempts from this system the operations performed by the Banco de Portugal. This Regulation comes into force on 1 March 2000.

**10 February (Regulation no. 14/2000, Supplement to Official Gazette no. 45, Series II of 23 February)**

Under the provisions laid down in no. 2 of Article 5, in no. 2 of Article 59, in Article 60, in no. 6 of Article 91, in no. 5 of Article 99, in Article 105 and in paragraph b) of no. 1 of Article 353 – all of the Stock Market Code, approved by Decree-Law no. 486/99 of 13 November –, lays down the regulations applicable to central securities depositories and to the compulsory registration of securities with a single financial intermediary. This Regulation comes into force on 1 March 2000.

**11 February (Notice of the European Central Bank 2000/C 39/04)**

Notice of the European Central Bank on the imposition of sanctions for breaches of the obligation to hold minimum reserves.

**15 February (Regulation no. 15/2000, Supplement to Official Gazette no. 45, Series II of 23 February)**

Under the provisions laid down in nos. 1 and 5 of Article 260, in no. 1 of Article 264 and in nos. 1 and 2 of Article 273 – all of the Stock Market Code, approved by Decree-Law no. 486/99 of 13 November –, lays down the rules governing the securities settlement systems, irrespective of their managing entity, and provides for the adequacy of the settlement system managed by the Lisbon Stock Exchange Association until 1 September 2000. This Regulation comes into force upon the registration at the Securities Market Commission (CMVM) of the operational rules governing the systems, under the terms laid down in no. 3 of Article 6 of Decree-Law no. 486/99 of 13 November.

**15 February (Regulation no. 16/2000, Supplement to Official Gazette no. 45, Series II of 23 February)**

Under the provisions laid down in Article 212 and in no. 4 of Article 214 of the Stock Market Code, approved by Decree-Law no. 486/99 of 13 November, lays down the legal framework, the organisation and the functioning of the second market managed by the Lisbon Stock Exchange Association. This Regulation comes into force on 1 March 2000.

---

\* The chronology for monetary measures of the Eurosystem can be found in the Monthly Bulletin of the European Central Bank.

**15 February (Regulation no. 17/2000, Supplement to Official Gazette no. 45, Series II of 23 February)**

Under the provisions laid down in Article 212 of the Stock Market Code, approved by Decree-Law no. 486/99 of 13 November, lays down the regulations governing the functioning of the market without quotations managed by the Lisbon Stock Exchange Association. This Regulation comes into force on 1 March 2000.

**15 February (Regulation no. 18/2000, Supplement to Official Gazette no. 45, Series II of 23 February)**

Under the provisions laid down in Article 212 of the Stock Market Code, approved by Decree-Law no. 486/99 of 13 November, sets forth the provisions governing the Special Market for Wholesale Transactions. This Regulation comes into force on 1 March 2000.

**16 February (Circular Letter of Banco de Portugal no. 4/00/DSBDR)**

Sets forth that all credit institutions subject to the supervision of the Banco de Portugal must previously communicate their projects regarding the direct or indirect acquisition of qualifying holdings in credit or financial institutions having their head-office abroad and which represent 10% or more of the capital of the undertaking or 2% or more of the shareholder's capital.

### May

**16 May (Council Regulation No.1010/2000, OJ L 115)**

Adopts measures relating to further calls by the European Central Bank on the national central banks' foreign reserve assets.

**23 May (Executive Order no. 284/2000, Official Gazette no. 119, Series I, B)**

Taking into account the provisions laid down in Executive Order no. 95/94 of 9 February and under the terms laid down in no. 1 of Article 95 and in no. 1 of Article 196 of the Legal Framework of Credit Institutions and Financial Companies, approved by Decree-Law no. 298/92 of 31 December, fixes the minimum capital stock for credit securitisation funds managing companies and for credit securitisation companies.

**25 May (Executive Order no. 289/2000, Official Gazette no. 121, Series I, B)**

Under the provisions laid down in paragraph b) of no. 1 of Article 59 of the Stock Market Code (*Código dos Valores Mobiliários*), establishes the rules governing the registration of book-entry securities with the issuer. This Executive Order takes effect on 1 March 2000.

**25 May (Executive Order no. 290/2000, Official Gazette no. 121, Series I, B)**

Under the provisions laid down in paragraph a) of no. 1 of Article 59 of the Stock Market Code (*Código dos Valores Mobiliários*), approves the model for the registration of securities issues with the issuer, provided for in Article 43 of the aforementioned ordinance. This Executive Order takes effect on 1 March 2000.

**26 May (Directive 2000/12/EC of the European Parliament and of the Council, OJ L 126)**

Adopts measures relating to the taking up and pursuit of the business of credit institutions. Directives 73/183/EEC, 77/780/EEC, 89/299/EEC, 89/646/EEC, 89/647/EEC, 92/30/EEC and 92/121/EEC, as amended by the directives set out in Annex V, Part A are repealed, without prejudice to the obligations of the Member States concerning the deadlines for transposition of the said directives listed in Annex V, Part B. References to the repealed directives are to be considered as being made to this directive and should be read in accordance with the correlation table in Annex VI.

### June

**2 June (Decree-Law No. 101/2000, Official Gazette No. 128, Series I, A)**

Transposes to Portuguese law Directive 98/7/EC of the European Parliament and of the Council of 16 February amending Directive 87/102/EEC of 22 December 1986 for the approximation of the laws, regulations and administrative provisions of the Member States concerning consumer credit. Replaces annexes nos. 1 and 2 of Decree-Law no. 359/91 of 21 September with annexes I and II of the above Decree-Law.

**26 June (Regulation of the Stock Market Commission no. 20/2000, Official Gazette no. 145, Series I)**

For the purposes laid down in Article 26 of Decree-Law no. 276/94 of 2 November reworded by Decree-Law no. 323/99 of 13 August, provides for the terms and conditions to be complied with in the disclosure to the pub-

	lic of the profitability measures of real estate investment funds. Revokes Regulation no. 10/97 of 26 June.
<b>28 June (Executive Order no. 382/2000, Official Gazette no. 147, Series I, B)</b>	Pursuant to the provisions set forth in no. 3 of Article 1 of Decree-Law no. 88/94 of 2 April, establishes that the securities representing the public debt, issued under the terms of the Resolution of the Council of Ministers no. 19-A/2000 of 2 May, shall be added to the list published through Executive Order no. 377-A/94, of 15 June.
<b>30 June (Regulation of the Stock Market Commission no. 22/2000, Official Gazette no. 149, Series I, Supplement)</b>	Regulates the operation of the Public Debt Special Market (Portuguese acronym: MEDIP), and provides for the application to this market of the rules laid down in Regulation no. 5/2000 of 23 February, that do not run counter to this Regulation.
<b>July</b>	
<b>5 July (Circular Letter of Banco de Portugal no. 23/DMRCF/DMC)</b>	Sends diskette containing a file with the list of all institutions subject to reserve requirements in the euro area, on 29 June 2000.
<b>7 July (Council Regulation no. 1478/2000, OJL 167)</b>	Introduces changes in Regulation (EC) no. 2866/98 on conversion rates between the euro and the currencies of the Member States which adopted the euro. This regulation enters into force on 1 January 2001.
<b>7 July (Council Decision no. 2000/427, OJL 167)</b>	Council Decision, under the provisions of Article 122 (2) of the Treaty, on the adoption of the single currency by Greece, on 1 January 2001. The derogation granted to Greece in recital 4 of the Decision 98/317/CE is revoked, coming into effect as from this date.
<b>13 July (Circular Letter of Banco de Portugal no.13/00/DSBDR)</b>	Recommends, in the wake of previous recommendation of the GAFI-Grupo de Acção Financeira, that credit institutions and financial companies should carefully examine the operations in which the respective counterparties have residence or are established in the following countries and territories: Bahamas, Cayman Islands, Cook Islands, Dominica, Philippines, Israel, Lebanon, Liechtenstein, Marshall Islands, Nauru, Niue, Panama, Russia, St. Kitts and Nevis and St. Vincent and Grenadines.
<b>15 July (Decree-Law no. 144/2000, Official Gazette no. 162, Series I, A)</b>	Creates an interest-rate subsidy in credit lines intended to the complementary financing of investment projects of municipal and inter-municipal nature subsidised by the ERDF and approved within the scope of the Community Support Framework (CSF 2000-2006) or of programmes implemented by the Community.
<b>17 July (Regulation of the Stock Market Commission no. 25/2000, Supplement to Official Gazette no. 163, Series II)</b>	Lays down a set of special regulations applicable to registration, clearing and settlement services of over-the-counter purchase and sale transactions of transferable securities, provided by a managing company operating in a regulated market.
<b>17 July (Notice of the Minister of Finance no. 11223/2000, Official Gazette no. 163, Series II)</b>	Announces, in compliance with the provisions laid down in Article 2 of Decree-Law no. 1/94, of 4 January, that the average interest rate to prevail in July 2000 is set at 2.53672%, which, multiplied by the 1.10 factor, is 2.79039%.
<b>17 July (Notice of the Minister of Finance no. 11224/2000, Official Gazette no. 163, Series II)</b>	Announces, in compliance with the final provisions laid down in Article 1 of Decree-Law no. 125/92, of 3 July, that the interest rate to prevail in July 2000, after multiplication by the 0.96 factor, is 2.43525%.
<b>18 July (Regulation of the Stock Market Commission no. 23/2000, Official Gazette no. 164, Series II)</b>	Establishes, under the provisions laid down in Article 34 (1) of the Stock Market Code, approved by Decree-Law no. 486/99, of 13 November, the voluntary intermediation procedure applicable to conflicts arising from relationships involving transferable securities.

## Chronology of major financial policy measures 2000

---

**19 July (Regulation of the Stock Market Commission no. 24/2000, Official Gazette no. 165, Series II)**

Revises the regulatory base regarding the information to be released to the market. Introduces changes in different articles, adds the new articles 1-A and 1-B, and republishes the full version of Regulation no. 11/2000, of 10 February, with the changes introduced therein.

**19 July (Notice of Banco de Portugal no. 1/2000, Official Gazette no. 165, Series I - B)**

Establishes, under Articles 99 and 196 of Decree-Law no. 298/92, of 31 December (Legal Framework of Credit Institutions and Financial Companies), the relationship between the own funds of credit securitisation companies and the amount of the respective issues of asset-backed securities that comply with the provisions laid down in Article 50 of Decree-Law no. 453/99, of 05 November.

**19 July (Decision no. 14580/2000, Official Gazette no. 165, Series II)**

Authorises the Instituto de Gestão do Crédito Público (Public Debt Management Institute), under the provisions laid down in Article 92 (2) of Law no. 3-B/2000, of 4 April, to intervene in the public debt secondary market as a counterpart in reporting operations of transferable securities representing direct public debt of the State accepted in the Public Debt Special Market (Portuguese Acronym: MEDIP).

**24 July (Notice of Banco de Portugal no. 2/2000, Official Gazette no. 169, Series I - B)**

Rewords the first indent of no. 2 c) of part I of the attachment to Notice no. 1/93, of 19 May, published in the Supplement to Official Gazette no. 133, Series II, of 8 June 1993.

**25 July (Circular Letter of Banco de Portugal no. 24/DMR)**

Informs that, following Circular Letter no. 347/DMR, of 27 October 1999, the rate of return on Certificates of Deposit, Series B, was fixed at 3%, to prevail on the quarter started on 4 August 2000.

### August

**2 August (Circular Letter of Banco de Portugal no. 25/DMRCF/DMC)**

Sends diskette containing a file with the list of all institutions subject to reserve requirements in the euro area, on 28 July 2000.



## WORKING PAPERS

## 1990

- 1/90** PRODUTO POTENCIAL, DESEMPREGO E INFLAÇÃO EM PORTUGAL  
Um estudo para o período 1974-1989  
— *Carlos Robalo Marques*
- 2/90** INFLAÇÃO EM PORTUGAL  
Um estudo econométrico para o período 1965-1989, com projecções para 1990 e 1991  
— *Carlos Robalo Marques*

## 1992

- 3/92** THE EFFECTS OF LIQUIDITY CONSTRAINTS ON CONSUMPTION BEHAVIOUR  
The Portuguese Experience  
— *Sílvia Luz*
- 4/92** LOW FREQUENCY FILTERING AND REAL BUSINESS CYCLES  
— *Robert G. King, Sérgio T. Rebelo*
- 5/92** GROWTH IN OPEN ECONOMIES  
— *Sérgio Rebelo*
- 6/92** DYNAMIC OPTIMAL TAXATION IN SMALL OPEN ECONOMIES  
— *Isabel H. Correia*
- 7/92** EXTERNAL DEBT AND ECONOMIC GROWTH  
— *Isabel H. Correia*
- 8/92** BUSINESS CYCLES FROM 1850 TO 1950: NEW FACTS ABOUT OLD DATA  
— *Isabel H. Correia, João L. Neves, Sérgio Rebelo*
- 9/92** LABOUR HOARDING AND THE BUSINESS CYCLE  
— *Craig Burnside, Martin Eichenbaum, Sérgio Rebelo*
- 10/92** ANALYSIS OF FOREIGN DIRECT INVESTMENT FLOWS IN PORTUGAL USING PANEL DATA  
— *Luísa Farinha*
- 11/92** INFLATION IN FIXED EXCHANGE RATE REGIMES:  
THE RECENT PORTUGUESE EXPERIENCE  
— *Sérgio Rebelo*
- 12/92** TERM STRUCTURE OF INTEREST RATES IN PORTUGAL  
— *Armindo Escalda*
- 13/92** AUCTIONING INCENTIVE CONTRACTS: THE COMMON COST CASE  
— *Fernando Branco*
- 14/92** INDEXED DEBT AND PRODUCTION EFFICIENCY  
— *António S. Mello, John Parsons*
- 15/92** "TESTING " FOR MEAN AND VARIANCE BREAKS WITH DEPENDENT DATA  
— *José A. F. Machado*
- 16/92** COINTEGRATION AND DYNAMIC SPECIFICATION  
— *Carlos Robalo Marques*

- 17/92** FIRM GROWTH DURING INFANCY  
— *José Mata*
- 18/92** THE DISTRIBUTION OF HOUSEHOLD INCOME AND EXPENDITURE IN PORTUGAL: 1980 and 1990  
— *Miguel Gouveia, José Tavares*
- 19/92** THE DESIGN OF MULTIDIMENSIONAL AUCTIONS  
— *Fernando Branco*
- 20/92** MARGINAL INCOME TAX RATES AND ECONOMIC GROWTH IN DEVELOPING COUNTRIES  
— *Sérgio Rebelo, William Easterly*
- 21/92** THE EFFECT OF DEMAND AND TECHNOLOGICAL CONDITIONS ON THE LIFE EXPECTANCY OF NEW FIRMS  
— *José Mata, Pedro Portugal*
- 22/92** TRANSITIONAL DYNAMICS AND ECONOMIC GROWTH IN THE NEOCLASSICAL MODEL  
— *Robert G. King, Sérgio Rebelo*
- 23/92** AN INTEGRATED MODEL OF MULTINATIONAL FLEXIBILITY AND FINANCIAL HEDGING  
— *António S. Mello, Alexander J. Triantis*
- 24/92** CHOOSING AN AGGREGATE FOR MONETARY POLICY: A COINTEGRATION APPROACH  
— *Carlos Robalo Marques, Margarida Catalão Lopes*
- 25/92** INVESTMENT: CREDIT CONSTRAINTS, REGULATED INTEREST RATES AND EXPECTATIONS OF FINANCIAL LIBERALIZATION THE PORTUGUESE EXPERIENCE  
— *Koleman Strumpf*

### 1993

- 1/93** SUNK COSTS AND THE DYNAMICS OF ENTRY  
— *José Mata*
- 2/93** POLICY, TECHNOLOGY ADOPTION AND GROWTH  
— *William Easterly, Robert King, Ross Levine, Sérgio Rebelo*
- 3/93** OPTIMAL AUCTIONS OF A DIVISIBLE GOOD  
— *Fernando Branco*
- 4/93** EXCHANGE RATE EXPECTATIONS IN INTERNATIONAL OLIGOPOLY  
— *Luís Cabral, António S. Mello*
- 5/93** A MODEL OF BRANCHING WITH AN APPLICATION TO PORTUGUESE BANKING  
— *Luís Cabral, W. Robert Majure*
- 6/93** HOW DOES NEW FIRM SURVIVAL VARY ACROSS INDUSTRIES AND TIME?  
— *José Mata, Pedro Portugal*
- 7/93** DO NOISE TRADERS “CREATE THEIR OWN SPACE”?  
— *Ravi Bhushan, David P. Brown, António S. Mello*
- 8/93** MARKET POWER MEASUREMENT – AN APPLICATION TO THE PORTUGUESE CREDIT MARKET  
— *Margarida Catalão Lopes*
- 9/93** CURRENCY SUBSTITUTABILITY AS A SOURCE OF INFLATION DISCIPLINE  
— *Pedro Teles*
- 10/93** BUDGET IMPLICATIONS OF MONETARY COORDINATION IN THE EUROPEAN COMMUNITY  
— *Pedro Teles*

- 11/93 THE DETERMINANTS OF FIRM START-UP SIZE  
— *José Mata*
- 12/93 FIRM START-UP SIZE: A CONDITIONAL QUANTILE APPROACH  
— *José Mata, José A. F. Machado*
- 13/93 FISCAL POLICY AND ECONOMIC GROWTH: AN EMPIRICAL INVESTIGATION  
— *William Easterly, Sérgio Rebelo*
- 14/93 BETA ESTIMATION IN THE PORTUGUESE THIN STOCK MARKET  
— *Armindo Escalda*
- 15/93 SHOULD CAPITAL INCOME BE TAXED IN THE STEADY STATE?  
— *Isabel H. Correia*
- 16/93 BUSINESS CYCLES IN A SMALL OPEN ECONOMY  
— *Isabel H. Correia, João C. Neves, Sérgio Rebelo*
- 17/93 OPTIMAL TAXATION AND CAPITAL MOBILITY  
— *Isabel H. Correia*
- 18/93 A COMPOSITE COINCIDENT INDICATOR FOR THE PORTUGUESE ECONOMY  
— *Francisco Craveiro Dias*
- 19/93 PORTUGUESE PRICES BEFORE 1947: INCONSISTENCY BETWEEN THE OBSERVED COST OF LIVING INDEX AND THE GDP PRICE ESTIMATION OF NUNES, MATA AND VALÉRIO (1989)  
— *Paulo Soares Esteves*
- 20/93 EVOLUTION OF PORTUGUESE EXPORT MARKET SHARES (1981-91)  
— *Cristina Manteu, Ildeberta Abreu*
- 1994**
- 1/94 PROCUREMENT FAVORITISM AND TECHNOLOGY ADOPTION  
— *Fernando Branco*
- 2/94 WAGE RIGIDITY AND JOB MISMATCH IN EUROPE: SOME EVIDENCE  
— *Sílvia Luz, Maximiano Pinheiro*
- 3/94 A CORRECTION OF THE CURRENT CONSUMPTION INDICATOR - AN APPLICATION OF THE INTERVENTION ANALYSIS APPROACH  
— *Renata Mesquita*
- 4/94 PORTUGUESE GDP AND ITS DEFLATOR BEFORE 1947: A REVISION OF THE DATA PRODUCED BY NUNES, MATA AND VALÉRIO (1989)  
— *Carlos Robalo Marques, Paulo Soares Esteves*
- 5/94 EXCHANGE RATE RISK IN THE EMS AFTER THE WIDENING OF THE BANDS IN AUGUST 1993  
— *Joaquim Pires Pina*
- 6/94 FINANCIAL CONSTRAINTS AND FIRM POST-ENTRY PERFORMANCE  
— *Paulo Brito, António S. Mello*
- 7/94 STRUCTURAL VAR ESTIMATION WITH EXOGENEITY RESTRICTIONS  
— *Francisco C. Dias, José A. F. Machado, Maximiano R. Pinheiro*
- 8/94 TREASURY BILL AUCTIONS WITH UNINFORMED BIDDERS  
— *Fernando Branco*
- 9/94 AUCTIONS OF SHARES WITH A SECONDARY MARKET AND TENDER OFFERS  
— *António S. Mello, John E. Parsons*

**10/94** MONEY AS AN INTERMEDIATE GOOD AND THE WELFARE COST OF THE INFLATION TAX  
— *Isabel Correia, Pedro Teles*

**11/94** THE STABILITY OF PORTUGUESE RISK MEASURES  
— *Armando Escalda*

### 1995

**1/95** THE SURVIVAL OF NEW PLANTS: START-UP CONDITIONS AND POST-ENTRY EVOLUTION  
— *José Mata, Pedro Portugal, Paulo Guimarães*

**2/95** MULTI-OBJECT AUCTIONS: ON THE USE OF COMBINATIONAL BIDS  
— *Fernando Branco*

**3/95** AN INDEX OF LEADING INDICATORS FOR THE PORTUGUESE ECONOMY  
— *Francisco Ferreira Gomes*

**4/95** IS THE FRIEDMAN RULE OPTIMAL WHEN MONEY IS AN INTERMEDIATE GOOD?  
— *Isabel Correia, Pedro Teles*

**5/95** HOW DO NEW FIRM STARTS VARY ACROSS INDUSTRIES AND OVER TIME?  
— *José Mata*

**6/95** PROCUREMENT FAVORITISM IN HIGH TECHNOLOGY  
— *Fernando Branco*

**7/95** MARKETS, ENTREPRENEURS AND THE SIZE OF NEW FIRMS  
— *José Mata*

### 1996

**1/96** CONVERGENCE ACROSS EU COUNTRIES: INFLATION AND SAVINGS RATES ON PHYSICAL AND HUMAN CAPITAL  
— *Paulo Soares Esteves*

**2/96** THE OPTIMAL INFLATION TAX  
— *Isabel Correia, Pedro Teles*

**3/96** FISCAL RULES OF INCOME TRANSFORMATION  
— *Isabel H. Correia*

**4/96** ON THE EFFICIENCY AND EQUITY TRADE-OFF  
— *Isabel H. Correia*

**5/96** DISTRIBUTIONAL EFFECTS OF THE ELIMINATION OF CAPITAL TAXATION  
— *Isabel H. Correia*

**6/96** LOCAL DYNAMICS FOR SPHERICAL OPTIMAL CONTROL PROBLEMS  
— *Paulo Brito*

**7/96** A MONEY DEMAND FUNCTION FOR PORTUGAL  
— *João Sousa*

**8/96** COMPARATIVE EXPORT BEHAVIOUR OF FOREIGN AND DOMESTIC FIRMS IN PORTUGAL  
— *Sonia Cabral*

**9/96** PUBLIC CAPITAL ACCUMULATION AND PRIVATE SECTOR PERFORMANCE IN THE U.S.  
— *Alfredo Marvão Pereira, Rafael Flores de Frutos*

- 10/96** IMPORTED CAPITAL AND DOMESTIC GROWTH: A COMPARISON BETWEEN EAST ASIA AND LATIN AMERICA  
— *Ling-ling Huang, Alfredo Marvão Pereira*
- 11/96** ON THE EFFECTS OF PUBLIC AND PRIVATE R&D  
— *Robert B. Archibald, Alfredo Marvão Pereira*
- 12/96** EXPORT GROWTH AND DOMESTIC PERFORMANCE  
— *Alfredo Marvão Pereira, Zhenhui Xu*
- 13/96** INFRASTRUCTURES AND PRIVATE SECTOR PERFORMANCE IN SPAIN  
— *Alfredo Marvão Pereira, Oriol Roca Sagales*
- 14/96** PUBLIC INVESTMENT AND PRIVATE SECTOR PERFORMANCE: INTERNATIONAL EVIDENCE  
— *Alfredo Marvão Pereira, Norman Morin*
- 15/96** COMPETITION POLICY IN PORTUGAL  
— *Pedro P. Barros, José Mata*
- 16/96** THE IMPACT OF FOREIGN DIRECT INVESTMENT IN THE PORTUGUESE ECONOMY  
— *Luísa Farinha, José Mata*
- 17/96** THE TERM STRUCTURE OF INTEREST RATES: A COMPARISON OF ALTERNATIVE ESTIMATION METHODS WITH AN APPLICATION TO PORTUGAL  
— *Nuno Cassola, Jorge Barros Luís*
- 18/96** SHORT-AND LONG-TERM JOBLESSNESS: A SEMI-PARAMETRIC MODEL WITH TIME -VARYING EFFECTS  
— *Pedro Portugal, John T. Addison*
- 19/96** SOME SPECIFICATION ISSUES IN UNEMPLOYMENT DURATION ANALYSIS  
— *Pedro Portugal, John T. Addison*
- 20/96** SEQUENTIAL AUCTIONS WITH SYNERGIES: AN EXAMPLE  
— *Fernando Branco*
- 21/96** HEDGING WINNER'S CURSE WITH MULTIPLE BIDS: EVIDENCE FROM THE PORTUGUESE TREASURY BILL AUCTION  
— *Michael B. Gordy*
- 22/96** THE BRICKS OF AN EMPIRE 1415-1999: 585 YEARS OF PORTUGUESE EMIGRATION  
— *Stanley L. Engerman, João César das Neves*
- 1997**
- 1/97** LOCAL DYNAMICS FOR PLANAR OPTIMAL CONTROL PROBLEMS: A COMPLETE CHARACTERIZATION  
— *Paulo Brito*
- 2/97** INTERNATIONAL PORTFOLIO CHOICE  
— *Bernardino Adão, Nuno Ribeiro*
- 3/97** UNEMPLOYMENT INSURANCE AND JOBLESSNESS: A DISCRETE DURATION MODEL WITH MULTIPLE DESTINATIONS  
— *Pedro Portugal, John T. Addison*
- 4/97** THE TREASURY BILL MARKET IN PORTUGAL: INSTITUTIONAL ISSUES AND PROFIT MARGINS OF FINANCIAL INSTITUTIONS  
— *Bernardino Adão, Jorge Barros Luís*

5/97 ECONOMETRIC MODELLING OF THE SHORT-TERM INTEREST RATE: AN APPLICATION TO PORTUGAL

— *Nuno Cassola, João Nicolau, João Sousa*

6/97 ESTIMATION OF THE NAIRU FOR THE PORTUGUESE ECONOMY

— *Carlos Robalo Marques, Susana Botas*

7/97 EXTRACTION OF INTEREST RATE DIFFERENTIALS IMPLICIT IN OPTIONS: THE CASE OF SPAIN AND ITALY IN THE EUROPEAN MONETARY UNION

— *Bernardino Adão, Jorge Barros Luís*

### 1998

1/98 A COMPARATIVE STUDY OF THE PORTUGUESE AND SPANISH LABOUR MARKETS

— *Olympia Bover, Pilar Garcia-Perea, Pedro Portugal*

2/98 EARNING FUNCTIONS IN PORTUGAL 1982-1994: EVIDENCE FROM QUANTILE REGRESSIONS

— *José A. F. Machado, José Mata*

3/98 WHAT HIDES BEHIND AN UNEMPLOYMENT RATE: COMPARING PORTUGUESE AND US UNEMPLOYMENT

— *Olivier Blanchard, Pedro Portugal*

4/98 UNEMPLOYMENT INSURANCE AND JOBLESSNESS IN PORTUGAL

— *Pedro Portugal, John T. Addison*

5/98 EMU, EXCHANGE RATE VOLATILITY AND BID-ASK SPREADS

— *Nuno Cassola, Carlos Santos*

6/98 CONSUMER EXPENDITURE AND COINTEGRATION

— *Carlos Robalo Marques, Pedro Duarte Neves*

7/98 ON THE TIME-VARYING EFFECTS OF UNEMPLOYMENT INSURANCE ON JOBLESSNESS

— *John T. Addison, Pedro Portugal*

8/98 JOB SEARCH METHODS AND OUTCOMES

— *John T. Addison, Pedro Portugal*

### 1999

1/99 PRICE STABILITY AND INTERMEDIATE TARGETS FOR MONETARY POLICY

— *Vitor Gaspar, Ildeberta Abreu*

2/99 THE OPTIMAL MIX OF TAXES ON MONEY, CONSUMPTION AND INCOME

— *Fiorella De Fiore, Pedro Teles*

3/99 OPTIMAL EXECUTIVE COMPENSATION: BONUS, GOLDEN PARACHUTES, STOCK OWNERSHIP AND STOCK OPTIONS

— *Chongwoo Choe*

4/99 SIMULATED LIKELIHOOD ESTIMATION OF NON-LINEAR DIFFUSION PROCESSES THROUGH NON-PARAMETRIC PROCEDURE WITH AN APPLICATION TO THE PORTUGUESE INTEREST RATE

— *João Nicolau*

5/99 IBERIAN FINANCIAL INTEGRATION

— *Bernardino Adão*

6/99 CLOSURE AND DIVESTITURE BY FOREIGN ENTRANTS: THE IMPACT OF ENTRY AND POST-ENTRY STRATEGIES

— *José Mata, Pedro Portugal*



2000

- 1/00 UNEMPLOYMENT DURATION: COMPETING AND DEFECTIVE RISKS  
— *John T. Addison, Pedro Portugal*
- 2/00 THE ESTIMATION OF RISK PREMIUM IMPLICIT IN OIL PRICES  
— *Jorge Barros Luís*
- 3/00 EVALUATING CORE INFLATION INDICATORS  
— *Carlos Robalo Marques, Pedro Duarte Neves, Luís Morais Sarmiento*
- 4/00 LABOR MARKETS AND KALEIDOSCOPIIC COMPARATIVE ADVANTAGE  
— *Daniel A. Traça*
- 5/00 WHY SHOULD CENTRAL BANKS AVOID THE USE OF THE UNDERLYING INFLATION INDICATOR?  
— *Carlos Robalo Marques, Pedro Duarte Neves, Afonso Gonçalves da Silva*