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CONTAINS CONFIDENTIAL
INFORMATION

October 3, 1997

To: Members of the Executive Board

From: The Acting Secretary

Subject: **Portugal—Selected Issues**

The attached paper provides background information to the staff report on the 1997 Article IV consultation discussions with Portugal, which was circulated as SM/97/236 on September 19, 1997.

Ms. Carkovic (ext. 38962) or Mr. J. Levy (ext. 34158) is available to answer technical or factual questions relating to this paper prior to the Board discussion.

Unless the Documents Preparation Section (ext. 36760) is otherwise notified, the document will be transmitted, in accordance with the procedures approved by the Executive Board and with the appropriate deletions, to the WTO Secretariat on Tuesday, October 14, 1997; and to the European Commission (EC), the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), the Food and Agriculture Organization (FAO), and the Organisation for Economic Cooperation and Development (OECD), following its consideration by the Executive Board.

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PORTUGAL

Selected Issues

Prepared by Maria Carkovic, Ioannis Halikias, Joaquim Levy, and Claudio Paiva (all EU1)

Approved by the European I Department

October 2, 1997

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Portugal: Basic Data

Total area:	34,312 square miles
Population:	9.9 million (1996)
GDP per capita (1996):	US$10,878

	1991	1992	1993	1994	1995	1996	1997
	(Changes in percent, except as otherwise indicated)						
Domestic economy							
Private consumption	5.2	4.6	-0.3	0.2	2.0	2.8	2.9
Investment	2.2	7.6	-9.5	4.1	3.2	5.5	6.5
Real domestic demand	4.1	5.0	-3.0	1.4	2.3	3.3	3.5
Real GDP	2.2	1.7	-1.1	0.5	2.3	3.3	3.3
Employment 2/ 3/	2.2	-6.3	-2.0	-0.1	-0.6	0.6	2.1
Unemployment rate 2/	4.1	4.1	5.5	6.8	7.2	7.3	6.5
Compensation per worker 4/	11.7	11.9	6.7	5.2	5.0	4.7	3.6
Unit labor costs (manufacturing)	15.8	14.6	8.1	5.8	-0.1	-2.8	...
Consumer prices 5/	11.4	8.9	6.5	5.2	4.1	3.1	2.7
GDP deflator	14.9	13.2	6.8	5.0	5.0	2.8	2.9
External accounts							
Export volume	1.1	7.4	0.6	15.2	12.9	11.5	8.3
Import volume	7.2	13.4	-5.2	11.9	9.8	7.9	8.0
Export unit value	-0.3	-2.1	2.3	5.1	3.1	-3.5	-0.8
Import unit value	-0.9	-5.4	2.8	3.3	1.8	0.1	-0.6
Trade balance (US$ billions, f.o.b.)	-7.9	-9.4	-8.0	-8.3	-8.9	-9.6	-9.8
Transfers (net, US$ billions)	6.0	7.8	6.7	5.4	7.1	6.8	6.8
Current account (US$ billions)	-0.7	-0.1	0.1	-2.2	-0.7	-2.7	-2.5
In percent of GDP	-0.9	-0.1	0.1	-2.6	-0.7	-2.5	-2.3
Nominal effective exchange rate 2/	0.5	3.6	-5.7	-3.4	1.7	0.2	-1.5
Real effective exchange rate (CPI based) 2/	6.9	8.6	-2.7	-1.2	2.2	1.2	-1.2
Foreign exchange reserves (end of period;							
in US$ billions) 6/	20.6	19.1	15.8	15.2	15.6	15.2	14.9
General government finances (in percent of GDP)							
Revenues	39.9	42.9	41.3	40.2	41.4	43.1	44.6
Expenditures	46.5	46.4	47.3	46.3	47.2	47.2	47.5
Current primary spending	31.9	32.0	34.4	34.3	34.8	35.7	36.0
Current balance	-3.0	0.3	-2.0	-2.8	-2.3	-0.5	0.5
Capital spending	6.2	6.7	6.8	5.7	5.8	6.6	6.9
Capital balance	-3.6	-3.8	-4.0	-3.3	-3.5	-3.6	-3.4
Primary balance	1.8	4.1	0.1	0.2	0.7	0.8	1.7
Structural primary balance	0.8	3.3	0.6	1.3	1.8	1.7	2.3
Overall balance	-6.6	-3.5	-6.0	-6.1	-5.8	-4.0	-2.9
Public debt 7/	67.3	58.3	62.1	64.5	66.6	66.0	62.9
Of which: external debt	5.0	4.3	7.1	9.5	11.9	12.0	11.0
Privatization receipts	0.9	1.7	0.4	0.6	2.3	2.8	4.2
Financial variables (end of period)							
Liquidity of residents (L-) 2/	18.5	13.4	6.2	9.5	8.2	9.0	7.9
Domestic credit	18.6	16.2	8.8	11.9	11.9	11.4	11.8
Credit to the general government 2/	4.1	7.1	2.3	15.0	-5.4	-5.8	-17.7
Credit to the private sector 2/ 8/	26.7	20.4	11.4	10.7	18.7	16.7	20.2
Interest rates (percent)							
Overnight rate 6/	18.6	14.2	11.2	8.9	8 4	6.7	5.4
Treasury bill rate (6-months) 6/	18.2	15.6	10.6	10.7	8.8	6.0	5.5
Deposit rate, 91-180 days 2/	18.2	14.0	10.2	9.3	8 1	5.5	4.9
Lending rate, 91-180 days 2/	21.2	18.9	15.7	14.7	12.7	11.0	9.1
Government benchmark bond 6/	...	...	9.0	11.6	10.0	7.0	6.2

Sources: Bank of Portugal; Ministry of Finance; and Fund staff estimates.

1/ Unless otherwise noted, 1997 data are staff estimates.
2/ Data for 1997 correspond to June.
3/ The figures from 1992 onward are not comparable to earlier years due to a change in the survey method.
4/ Data for 1997 correspond to wage increases implicit in collective wage agreements in the private sector during January-June.
5/ Data for 1997 is the rolling 12-month average through July.
6/ Data for 1997 correspond to July.
7/ Maastricht definition.
8/ Includes nonfinancial public enterprises and nonmonetary financial institutions.

INTRODUCTION AND OVERVIEW

1.   This year's Article IV consultation discussions with Portugal took place against the background of a distinctly positive economic performance, marked by accelerating growth, lower inflation, and a beneficial rebalancing of the policy mix through a reduction in the fiscal deficit and an easing of interest rates. The consistent pursuit of stability-oriented policies has yielded clear benefits, bringing the economy to the threshold of early EMU qualification, which has been the central policy objective of recent years. With achievement of this objective now in sight, the requirements for a successful performance under monetary union acquire early policy prominence. In this context, the present paper reviews a set of issues of relevance to the regime change implied by EMU participation.

2.   A first area in which this regime change will have an impact is that of the available policy responses to **business cycle fluctuations**. Shocks to output have in the past been weathered through the exchange rate instrument (albeit, as suggested in Chapter II reviewed below, to a lesser degree than may appear at first sight) and the working of the automatic fiscal stabilizers. With the loss of the former under EMU, fiscal policy will be called upon to bear a heightened countercyclical burden. The likely extent of this burden, and its implications for the setting of an appropriate medium-term fiscal target, depend inter alia on the amplitude and nature of output fluctuations. Chapter I (by Maria Carkovic) accordingly attempts to gain further insight into the cyclical behavior of the Portuguese economy from 1953 to 1993, by means of a **statistical analysis of economic fluctuations**, using the Bank of Portugal's newly released long-term economic time series.[1] The evidence strongly suggests that, while the stylized facts of business cycles in Portugal conform closely with those of other advanced economies, the country's catch-up process to European real income levels, and the associated structural and policy changes (notably far-reaching trade integration), have entailed an appreciable increase in output volatility, both in absolute and comparative terms, and a high persistence of output fluctuations. As Portugal joins EMU, it will experience further trade and financial market integration and be exposed to a set of external shocks—some of which partly asymmetrical in their impact—that could further magnify the variability of output. Hence the policy implication of the need for a medium-term fiscal balance that will be sufficiently strong to handle such shocks while observing the provisions of the Stability and Growth Pact under EMU.

3.   As reviewed in several previous staff papers, Portugal's economic performance in the decade since EU accession has been marked by a successful process of nominal and real convergence. The contribution of monetary policy to this performance has, over the past years, been the subject of some public debate, with a broad consensus on the virtues of a firm, stability-oriented conduct of policy emerging only more recently, as its benefits have become

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[1]The availability of this series, it should be noted, has been a major contribution to the advancement of research on the Portuguese economy, and was used extensively throughout the present paper.

increasingly evident. In this context, Chapter II (by Ioannis Halikias and Joaquim Levy) attempts to obtain a quantitative sense of the impact of monetary policy on the Portuguese economy, utilizing an unrestricted vector autoregression methodology to characterize the **monetary transmission mechanism**. The paper finds that monetary policy actions, as captured by shocks to the short-term interest rate, have strong effects on key macroeconomic variables, notably prices and economic activity. The exchange rate—the intermediate objective of monetary policy—is confirmed to be an important transmission channel, as would be expected in an economy with a high degree of openness. To gain additional insight into the nature of these effects, the study also decomposes the short-term interest rate into an anchor currency and a domestic premium component. Finally, on the basis of the empirical results that emerge, the paper draws certain, highly tentative, inferences regarding the likely impact of EMU. These are found to be generally benign. First, the virtual elimination of the interest rate premium under EMU can be expected to contain output volatility, serving to dampen the effects working in the opposite direction (as reviewed in Chapter I). Second, the paper postulates that the loss of the exchange rate instrument in the face of asymmetric shocks may entail a smaller cost in the case of Portugal compared to some other countries, given the way that monetary policy has in practice operated to date, with the escudo positioning itself between the deutsche mark and "noncore" currencies, and actually experiencing a small effective appreciation at times of German monetary policy tightening. However, considerable caution must surround these considerations, since it can be expected that closer economic integration of Portugal in the euro area, and the entrenchment of low and stable inflationary expectations, would render the economy more vulnerable to changes in the euro interest rate than it has been to those in the deutsche mark interest rate under the ERM arrangements. Structural policies that would bolster the economy's resilience to external shocks clearly remain necessary to guard against this risk.

4.   With the prospective locking of exchange rates prior to Stage 3 of EMU, and a series of other looming changes in the external environment facing Portugal (including EU enlargement to Central and Eastern European countries), the question of whether the external sector is equipped to perform successfully in this new environment is crucial. Chapter III (by Joaquim Levy and Claudio Paiva) accordingly examines some **key forces at work in Portugal's external sector** from different vantage points. Starting from the finding shared by most of the literature on the subject—i.e., that the substantial real appreciation of the escudo that followed EU accession was an equilibrating process—the study attempts to measure the direct impact of the real appreciation on the profitability of the exporting sector, and reviews the main structural changes in the composition of exports that have underpinned the maintenance of competitiveness. The study also evaluates the concentration of structure and geographical destination of Portuguese exports (drawing inter alia on so-called "gravity" models) and gauges the relative comparative advantages of Portugal vis-à-vis main Central and Eastern European countries. It finds that the equilibrium real exchange rate appreciation has been sustained by a change in the structure of exports toward higher value-added products, accompanied by an increase in the capital intensity (and an attendant rise in labor productivity) of the export sector. At the same time, however, "gravity" models suggest that scope for further geographical and composition diversification persists. The study highlights

that taking up such scope is all the more important in view of the fact that some of the candidates for the next round of EU enlargement appear to have comparative advantages vis-à-vis Europe similar to those of Portugal.

5.   Finally, Chapter IV (by Joaquim Levy) approaches the current account from a different perspective, and one that is seen to be of particular relevance in view of the prospective start of EMU and the growing importance of international capital movements. Specifically, it attempts to investigate the extent to which fluctuations in the current account balance reflect optimizing behavior as regards saving decisions on the part of Portuguese households. While dispensing with direct recourse to the exchange rate as an explanatory variable, the **intertemporal approach to the balance of payments** used in this chapter subsumes this and other economic variables in the factors conditioning agents' optimal saving schedule and accompanying borrowing and lending flows. The study finds that the fluctuations in the external accounts recorded over the past forty years can in large part be explained as equilibrium reactions of households to policies in place and expected movements of national income. This would suggest that the recent widening of the current account deficit could reflect the firming of expectations of early EMU participation and the attendant positive shock to the economy. It would also suggest that, to the extent that financial policies remain prudent, the external current account deficit should narrow appreciably once these positive—and exceptional—events materialize.

I. AN EMPIRICAL INVESTIGATION OF THE BUSINESS CYCLE[2]

A. Introduction and Summary

6.   The characteristics of Portugal's business cycle are perceived to have become increasingly similar to those of cycles in other advanced economies, while cyclical output fluctuations are believed to have remained comparatively more pronounced. This chapter investigates whether these commonly held views are supported by an empirical analysis using the Bank of Portugal's newly released long-term economic time series. Specifically, it seeks to compare the amplitude and stability of output fluctuations in Portugal with those in larger European economies. It also examines the cyclical behavior of an array of macroeconomic data measuring aggregate demand, supply, and labor market conditions in Portugal and compares the results with those found in studies of other industrial countries. Finally, the chapter tests for changes in the nature of Portugal's business cycle, and assesses the likelihood of continued relatively higher output variability in the period ahead.

7.   An improved empirical understanding of Portugal's business cycle is helpful both in projecting macroeconomic performance and the formulation of policy. More specifically, the finding that Portugal's business cycle is relatively more volatile, and likely to remain so in comparison to its larger EU partners, in conjunction with the loss of the monetary policy lever under EMU, suggest the need for a relatively stronger fiscal position. The degree to which fiscal policy will need to assume a heightened countercyclical role has direct implications in determining the appropriate fiscal balance to be pursued in the medium term.

8.   The evidence confirms that Portugal's catch-up process to European real income levels has, as could be expected, been associated with output fluctuations that are considerably more marked than in larger European economies. The stylized facts of business cycles in Portugal nonetheless conform closely with those of other industrial countries. Specifically, all aggregate demand variables except government consumption move tightly with the output cycle and, as is the case for overall output, are highly persistent. Consumption and investment are procyclical, and net exports are countercyclical. Furthermore, investment and net exports are substantially more volatile than GDP. Employment is also procyclical but less volatile than real output.

9.   The past four decades have seen significant shifts in the nature of Portugal's business cycle, with the major driving force being the series of structural and policy changes that have occurred since the 1974 revolution, including notably the opening up and liberalization of the economy in the wake of EU accession in 1986. Output fluctuations exhibit high persistence, and the co-movement of output with other macroeconomic variables such as investment, net exports, and employment, now more closely resembles the co-movements found in other advanced economies. At the same time, the differences in Portugal's recent economic and political history that set it apart from its EU partners have also made for a comparatively

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[2]Prepared by Maria Carkovic.

stronger rise in output volatility, not only with respect to the experience of large European economies but also to that of other southern European countries. The evidence presented here indicates that large European economies have not experienced a significant change in the amplitude of cyclical fluctuations during the 40 years studied. Other studies on southern European economies report either no significant change (Italy after 1973) or a decline in output volatility (Spain in the 1980s compared with the 1970s).

10.   This study conducts a preliminary investigation of the factors underlying the observed rise in output volatility. There has, first and foremost, been a marked increase in exposure to foreign trade, together with much higher volatility of such trade. Furthermore, Portugal experienced a pronounced rise in price volatility, against the background of successive shifts in the stance of financial policies. The data also suggest that structural factors played a role in increasing output volatility. In a similar vein, previous work by the staff on the growth payoff of policy reform found that international trade was an important factor that had boosted trend growth in Portugal after EU accession.[3] Taken together with the findings of the present study, the results would imply that trade integration has not only increased long-term growth—as would be predicted by theories of comparative advantages—but that it has also been associated with much larger fluctuations of output around its trend.

B. Methodology

Trend-cycle decomposition

11.   The first problem that typically arises in the analysis of the business cycle is its measurement, which requires that the economic series be decomposed into trend and cycle. This mere distinction is controversial because the two components may be closely related and determined by the same underlying factors. Furthermore, there are many methods for decomposing time series into trend and cyclical components. Bearing in mind these qualifications, this chapter removes the potential nonstationarity in aggregate time series by means of low-frequency filtering, a procedure adopted by Hodrick and Prescott (HP, 1980), who propose a filter whose main attractiveness lies in its flexibility, simplicity, and reproducibility.[4] Another advantage of the HP filter is that it has been used in several studies

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[3]"Portugal's Performance After Accession to the European Union: The Growth Payoff of Policy Reform," (SM/96/253, 10/4/96).

[4]According to Kydland and Prescott (1990), the HP filter satisfies the following criteria:"The trend component of real output should be approximately the curve that students of business cycles and growth should draw through a time plot of the time series. The trend of a given time series should be a linear transformation of that time series, and that transformation should be the same for all series. Lengthening the sample period should not significantly alter the value of the deviations at a given date, except possibly near the end of the original sample. The scheme should be well defined, judgement free, and cheaply reproducible."

of business cycles in industrial economies, and has also been applied to the Portuguese economy by Correia, Neves, and Rebelo (1993).

12.   The HP filter defines a trend τ for a series y as the solution to the problem:

$$(1) \quad \min \sum_{t=1}^{T} (y_t - \tau_t)^2 + \lambda \sum_{t=2}^{T-1} [(\tau_{t+1} - \tau_t) - (\tau_t - \tau_{t-1})]^2$$

Fluctuations are defined as deviations from trend, $y - \tau$. In equation (1) the parameter λ represents the choice between perfect smoothness of the trend ($\lambda = \infty$), that is, a linear trend, versus perfect fit of the trend ($\lambda = 0$), that is, the trend replicates the series. The benchmark value chosen in this study is $\lambda = 100$ for all series, which is the most common value assigned when filtering annual data.

Statistical characterization of business cycles

13.   A common theme of the line of research followed in this chapter is that business cycles consist not simply of fluctuations in aggregate output but also of common patterns of correlations between aggregate time series. To characterize economic fluctuations and patterns among variables, this analysis first obtains the cyclical components of the series, and then computes the following statistics:

(1) **Volatility**: The standard deviation of the filtered series is used as a measure of the amplitude of business cycle fluctuations. To compare any series' volatility with that of real GDP, this study also presents the ratio of the standard deviation of the filtered series to the standard deviation of filtered real GDP.

(2) **Persistence**: The autocorrelation of the filtered series is used as a measure of persistence of cyclical deviations from trend.

(3) **Co–movement**: The correlation of a macroeconomic variable with real output (for lags up to three periods) is used as a measure of the variable's co-movement with the output cycle. It indicates whether the macroeconomic variable is strongly or weakly cyclical, whether it moves pro- or countercyclically, and whether it leads, is coincidental, or lags real output.[5] A variable is procyclical if the cross correlation is positive and countercyclical if it is negative.

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[5]Specifically, following Fiorito and Kollintzas (1994), a variable is strongly cyclical if the absolute value of the maximum cross correlation is between 0.5 and 1. If the value is between 0.32 and 0.5, the variable is weakly cyclical, and if it is below 0.32 the variable is acyclical. The cutoff point of 0.32 corresponds to the value required to reject the null hypothesis that the correlation coefficient is zero at the 5 percent significance level in a two-sided test for bivariate random variables.

Finally, a variable leads the cycle if the maximum absolute value of the cross correlation occurs in (t-i), it is coincidental if it occurs in t, and it lags the cycle if the absolute correlation peaks in (t+i).

14.   Data for this analysis are taken from the newly released long-term economic time series constructed by the Bank of Portugal. The data are annual and span the years 1953 to 1993. All variables are expressed in natural logarithms except inventories, which are expressed as a ratio to GDP, and net exports, the natural log of which is approximated by the following transformation: net exports / |average net exports| - 1.

C. Growth and Output Fluctuations in a European Context

15.   To place the long-term properties of Portugal's **output growth** in perspective, Table 1 (top section) summarizes means, standard deviations, and autocorrelation coefficients for output growth in Portugal and the combined output of three of the largest European economies: Germany, France, and the United Kingdom.[6] In the four decades to 1993, Portugal's economy grew by 4.6 percent annually on average, a full percentage point above the three large EU countries. Growth was also 40 percent more volatile than in these countries.

16.   In the 40 years covered by the sample, Portugal underwent many structural changes that clearly had a strong impact on its trend growth and cyclical fluctuations. A major political change with profound economic implications was the 1974 revolution, which ended an authoritarian regime that had been in place for almost half a century. In order to take the significant change in the political and economic environment duly into account, the sample is split in two subperiods. Furthermore, to abstract from the considerable turmoil surrounding the revolution, the sample excludes the two years before, and the two years following, 1974.

17.   There was a marked difference in the characteristics of output growth after the revolution. First, although output growth slowed throughout Europe, the slowdown was much less pronounced in Portugal. After 1974, Portugal grew at twice the speed of the three large EU countries. Second, growth in Portugal became markedly persistent, indicating a lengthening of growth cycles.[7] Indeed, after 1974, growth in Portugal became as persistent as growth in the three large EU economies.

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[6]The results presented in this paper also hold if Portugal is compared with Germany and France alone.

[7]For Portugal, Table 1 reports a reversal in the sign of the autocorrelation coefficient in the two subperiods. Backus and Kehoe (1992) report a similar change in their examination of pre- and post-war growth rates in 10 industrial countries. They point out that this reversal may reflect a change in the nature of economic fluctuations, but measurement error is also a possibility, since white-noise errors in the output series would have precisely this effect on the autocorrelation of growth rates.

18.   As with growth, **output fluctuations**, namely, deviations from long-term trends, clearly differ in Portugal and the three large EU countries (Table 1, middle section). Output volatility in Portugal is twice that in the these countries. Furthermore, it increased by 66 percent after 1974 and deviations from trend became highly persistent. It would appear that the cumulative effect of the many structural and policy changes that occurred after the 1974 revolution changed the nature of economic fluctuations in Portugal. Specifically, the amplitude and length of cycles increased substantially (Figure 1, top panel) and the volatility of output cycles in Portugal relative to the three large European countries changed permanently, as shown by the plot of the nine-year rolling standard deviation of output fluctuations (Figure 1, lower panel).[8] The switch from an inward-oriented economy and an inert political situation to one marked by increased openness, and a series of changes in political and economic approaches in the course of the democratization process, clearly induced a strong and lingering rise in output volatility. Output fluctuations remained comparatively greater even after the immediate effects of the 1974 shock had faded, while output volatility in the three large European countries did not rise significantly.

19.   The relationship between Portugal's output fluctuations and those of large European economies has also changed. Real output movements became more tightly associated with those in Europe and more closely synchronized (Table 1, lower section). In 1953–71, Portugal's output fluctuations lagged Europe's by two years. In 1977–93, correlation coefficients increased and output fluctuations lagged those in Europe by only one year.[9]

20.   The experience of the last 40 years reviewed above leads to three main conclusions. First, faster growth in Portugal than in the large economies in Europe has been associated with larger cyclical fluctuations. Second, there has been a marked change in cyclical fluctuations in Portugal after 1974, with output fluctuations in the later years being significantly more volatile and persistent than in the earlier years. Third, output fluctuations in Portugal are now more strongly correlated and closely synchronized with the European cycle.

D. Characteristics of the Portuguese Business Cycle

21.   To obtain a fuller understanding of the characteristics of the Portuguese business cycle, this section investigates the behavior of aggregate demand, sectoral composition of output, and the labor market during 1953–93. It also presents a qualitative comparison with

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[8]Each observation is computed using a rolling window of nine years. Thus, the standard deviation dated t is computed using the cyclical component of real GDP from t-4 to t+4.

[9]The gradual synchronization of output cycles seems to have continued beyond 1993. It is widely acknowledged that the last European recession, which bottomed in 1993, and the subsequent recovery, have been felt contemporaneously in Portugal.

other studies to assess the extent to which the empirical regularities found in Portugal match those found in other industrial countries.[10]

22.   The cyclical behavior of aggregate demand variables, productive sectors, and the labor market is studied with reference to the output cycle. Figure 2 depicts actual and trend output, and cyclical fluctuations. The troughs of the last three cycles have occurred every nine years: 1975, 1984, and 1993. Furthermore, visual inspection reveals the very similar, and large, amplitude of recent cycles.

Aggregate demand and prices

23.   The main empirical regularity that emerges from an analysis of the characteristics of de-trended aggregate demand variables is that they are highly persistent and co-move with the reference output cycle (Table 2 and Figure 3). **Private consumption** is strongly procyclical, coincidental, and as variable as output. These characteristics accord with the evidence presented by Backus and Kehoe (1992) for ten industrial countries (including six in Europe) covering a century of data. Christodoulakis and others (1994) extend the work to include twelve EU countries (including Portugal), using annual data for 1960–90, and find that in two-thirds of the countries the variability of consumption exceeds that of output. In their study on Portugal, Correia and others (1993) find that consumption is less volatile than output, using annual data for 1958–91. When consumption is separated into consumption of durable goods, nondurable goods, and services, the patterns of co-movement with GDP remain the same but those of volatility differ. Consumption of durable goods exhibits the greatest volatility, and services the least. However, contrary to the permanent income and life-cycle hypotheses, consumption of nondurable goods is not smoother than income. Dolado and others (1993) find a similar behavior in Spain, using quarterly data for 1970–91, and favor the explanation that liquidity constraints may have prevented a stronger smoothing behavior in the consumption of nondurable goods. Moreover, frequent tax and transfer policy changes are likely to have affected disposable income.

24.   **Investment** is over three times more volatile than output in Portugal, a result which falls in the middle of the range of two to five that is found in the 10 countries studied by Backus and Kehoe (1992). Investment fluctuations are strongly procyclical, coincidental, and the most persistent among aggregate demand components. The behavior of investment over the business cycle is mostly driven by gross fixed investment, while inventories show smaller volatility and less persistence, and lead output by two periods. The evidence on inventories contrasts with that of Fiorito and Kollintzas (1994), whose study of G7 countries using quarterly data for 1960–89 shows that inventories are by far the most volatile component of aggregate demand. In contrast, Dolado and others (1993) find inventories to be acyclical in their study on Spain.

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[10]A quantitative comparison of the statistical moments of the de-trended series of Portugal and those reported for other countries is not possible due to differences in time periods, periodicity, and the choice of de-trending parameters to analyze business cycles.

25.   **Government consumption** is 20 percent more volatile than output, significantly persistent, and acyclical, which conforms with the evidence of other countries where government spending exhibits little regularity (Backus and Kehoe, 1992; Christodoulakis and others, 1994; and Fiorito and Kollintzas, 1994). Although this result may seem surprising since discretionary fiscal policy as a whole is traditionally viewed as countercyclical, it may be explained by the exclusion of other elements of fiscal policy (for example, tax revenues and transfers) which can be expected to move strongly against the cycle, but that are not captured in the definition of public consumption.

26.   **Net exports of goods and services** are over eight times more variable than GDP, and the most volatile component of output. They are significantly persistent, countercyclical, and coincidental. The evidence on net exports in other industrial countries also points to strong volatility (although not the highest among demand components of GDP) and countercyclical behavior. Previous studies on Portugal also report net exports as the most volatile component of GDP.[11]

27.   **Prices** are very persistent, which may reveal informal indexation mechanisms that are characteristic of relatively high inflation countries, as was the case of Portugal particularly after the 1974 revolution. Prices are also more volatile than output, strongly countercyclical, and coincidental. The countercyclical behavior of price level fluctuations is found in most studies using post-World War II data.[12]

Employment and production

28.   **Employment** in Portugal shows the most persistent behavior of the real variables. However, it is much less volatile than output, strongly procyclical, and coincidental. Evidence on the volatility and co-movement of employment and output accords with that found in the other studies reviewed. It is also consistent with theories of labor hoarding: firms find it relatively more costly to adjust employment than hours per worker, so that they have an incentive to smooth employment over the business cycle and use labor more intensely in expansionary phases and less intensely in contractionary phases. In contrast to volatility and co-movement, the international evidence on the phase shift of employment (that is, on whether it leads or lags the cycle) does not show as clear a pattern as the components of aggregate demand because institutional environments affecting hiring, firing, job search costs, and unemployment compensation differ across countries. Fluctuations in **productivity** during the cycle closely resemble the behavior of employment fluctuations; as in G7 countries, productivity is procyclical and coincidental.

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[11]Correia and others (1993); and Christodoulakis and others (1994).

[12]For a discussion, see Backus and Kehoe (1992); and Fiorito and Kollintzas (1994).

29.   The data reveal sharp disparities in the cyclical behavior of **production** and employment by sector (Figure 4). Output in both industry and services is strongly procyclical and coincidental, while the primary sector is less correlated with output, but much more volatile. The same patterns are found in a study by Schlitzer (1995a) on Italy using quarterly data for 1959–92. Persistence also differs across sectors. Output fluctuations in the primary sector are not significantly persistent, in contrast to fluctuations in manufacturing and services. Similarly, employment in manufacturing and services is less volatile than output, significantly persistent, strongly procyclical, and coincidental. As with output, the cyclical characteristics of employment in the primary sector differ from other sectors. It is weakly countercyclical and it lags the cycle by one year.

30.   In sum, the **main characteristics of the business cycle in Portugal** conform with the stylized facts of business cycles in industrial countries, as follows:

    (i)   output deviations from trend are persistent;

    (ii)   consumption and investment are strongly procyclical;

    (iii)   net exports are strongly countercyclical;

    (iv)   investment and, particularly, net exports are significantly more volatile than GDP;

    (v)   there is no systematic tendency on government consumption;

    (vi)   price level fluctuations are countercyclical; and

    (vii)   employment is much less volatile than output, procyclical, and persistent.

E.   The Stability of the Cycle: A Comparison Before and After 1974

31.   As documented above, Portugal experienced an increase in output fluctuations after the 1974 revolution. The question addressed in this section is whether the change in output fluctuations has been associated with significant changes in other characteristics of the Portuguese business cycle.

32.   The evidence shows an **increase in the volatility of output** and of all of its components, except public consumption (Table 3). Output volatility is 66 percent higher after 1974 than before, while the volatility of investment more than doubles and that of net exports posts an almost eightfold increase. To test the significance of such changes, the confidence interval is determined for the variance of output and aggregate demand fluctuations (Table 4).[13] In all cases the variance of output and its demand components during the first

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[13]The confidence interval for the variance, which assumes that the mean of the distribution is

subperiod falls outside the 95 percent confidence interval for the variance of the second subperiod. The null hypothesis that both variances come from the same distribution is thus rejected, confirming that the increase in volatility of output since 1974 extends to its demand components.

33. Price volatility also increased significantly after 1974. This confirms the empirical regularity that higher inflation, as was experienced after the 1974 revolution, is associated with higher volatility (Lucas, 1973; Cukierman, 1979; Hercowitz, 1981; and Blejer, 1982). The average rate of inflation (measured by the GDP deflator) in the second subperiod increased sixfold, to close to 16 percent, from the first subperiod average. As would be expected in conjunction with the rise in output volatility, employment fluctuations also became wider after 1974.

34. The **persistence** of deviations from trend continues to be high. The hypothesis that persistence is the same across periods cannot be rejected at the 90 percent significance level. Table 5 presents the F-statistics and probability values for the autocorrelation coefficient.[14]

35. The co-movement between output and its aggregate demand components has strengthened after 1974 and conforms more closely with the stylized facts of the business cycle in industrial countries. Moreover, many of the pre-1974 results appear atypical (including a countercyclical leading behavior of investment, procyclical behavior of net exports, and low persistence of output fluctuations). Stability tests on the contemporaneous correlation of each variable with GDP yield a significant **increase in the co-movement** between output and investment, net exports, employment, and productivity (Table 5).[15] The correlation between private consumption and GDP also increased after 1974, but the increase is not statistically significant. After 1974, and except for public consumption, all output components are coincidental. Government consumption has continued to be highly procyclical but has changed the phase-shift with respect to the output cycle: it led output fluctuations before 1974 and it has lagged them since then

36. The evidence presented in this section indicates that Portugal's increase in output volatility after 1974 has been associated with higher volatility in all aggregate demand components, except public consumption, and continued high persistence. The data also suggest that, after 1974, Portugal's business cycle resembles more closely the stylized facts of

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[13](...continued)
unknown, is distributed as a Chi-square with (n-1) degrees of freedom.

[14]The statistics are derived from performing Chow-tests on the parameters of regressions of each detrended variable on its lagged value.

[15]The statistics are derived from performing Chow tests on the parameters of regressions of each detrended variable on detrended output.

business cycles in industrial countries, with stronger co-movements of output fluctuations with investment, net exports, and employment.

37. Stability tests were also performed for other subperiods, specifically those between 1974 and EU accession in 1986, and from EU accession onward, to test whether the change in policy regime brought about by EU integration has had a significant impact on output volatility. The null hypothesis that output volatility was the same between 1974 and EU accession, and after EU accession, could not be rejected at standard significance levels. It should be noted, however, that splitting the sample to perform stability tests drastically reduces the number of observations and the power of the tests. In any event, the evidence seems to differ from that on Spain, reported by Dolado and others (1993), who find a substantial reduction in output volatility in the 1980s compared with the 1970s, and on Italy, reported by Schlitzer (1995a), who finds no significant change in output volatility after 1973.

F. Another Look at the Increase in Output Volatility

38. This section examines some of the structural and policy-induced changes that might have increased the amplitude of economic cycles in Portugal after 1974. The first hypothesis examined is whether output volatility might have responded to structural changes that increased the relative importance of highly volatile sectors. Figure 5 illustrates the **change in the structure of productive sectors** and their employment, showing that in the 40 years to 1993 there was a strong recomposition of output away from the most volatile sector of the economy, the primary sector. Its share in GDP fell from 30 percent in 1953 to 8 percent in 1993. Conversely, services—the most stable sector of the economy—grew from almost 40 percent of GDP in 1953 to 46 percent in 1993. Although the services sector remained the most stable in relative terms, its absolute volatility has increased significantly (in a statistical sense) after 1974, and its co-movement with output has also risen significantly. Thus, the increase in output volatility in Portugal cannot be traced simply to a change in the relative importance of the most volatile sector. Instead, the evidence is more subtle and harder to interpret: volatility has increased in all sectors, and especially in the comparatively more stable sector, services.

39. The second hypothesis investigated is whether higher output volatility was policy-induced. Among the variables more closely linked to policies, net exports exhibited the sharpest change. Volatility increased almost eightfold after 1974. This increase occurred together with a significant rise in the co-movement of trade with output, and a sharp rise in openness to international markets. Exports and imports of goods and services rose from 34 percent of GDP in 1953 to 127 percent of GDP in 1993. Thus, Portugal's sustained and deep **integration in foreign markets** since the mid–1970s—boosted by EU entry in 1986–and the associated fluctuations of foreign trade, are likely to have had a notable impact on real output fluctuations.

40. In assessing the causes of the rise in output volatility, due consideration must also be given to the prolonged period of political instability that followed the 1974 revolution,

accompanied by **successive shifts in economic policy approaches** and a number of external shocks, both of a worldwide (oil prices) and country-specific nature (the loss of privileged markets in Africa, the massive return of settlers, etc.) These developments were reflected in balance of payments crises that led to two stand-by arrangements with the Fund (in 1978 and 1983); double-digit inflation in all but the last two years of the period under review; and a marked fiscal deterioration (from an average surplus of 1¼ percent of GDP in the pre-revolution period to a deficit of 6½ percent of GDP thereafter). Earlier work by the staff on the construction of a financial conditions index for Portugal showed that there were frequent shifts in the stance of monetary and fiscal policies during most of the 1980s, and that financial policies tended to stabilize only in the early 1990s.[16] It would not be surprising that the higher volatility of financial policies that typified most of the post–1974 period played a role in inducing a rise in output deviations from trend and in price volatility.

41.   In sum, it would appear that the sharp rise in the deviations of output around its long-term trend that has characterized Portugal's business cycle after 1974 has been partly the cumulative result of policy induced-factors, notably the far-reaching foreign trade integration and lesser stability of financial policies (compared with the pre–1974 period), and partly the result of structural factors. It should be noted, however, that the evidence presented above is not one of causality but of association, and does not distinguish the relative importance of the factors under review; it therefore needs to be interpreted with caution.

G. Concluding Remarks

42.   The overall evidence presented in this chapter shows that economic fluctuations in Portugal conform with the general characteristics of the business cycles in European and other industrial countries. The similarities between Portugal and these countries, which have become even more marked since 1974, extend to the persistence of output fluctuations, and the co-movement and volatility of a wide array of variables relative to the output cycle. Furthermore, output movements in Portugal are now more closely synchronized with those in larger European partners. However, a principal characteristic of Portugal's business cycles, that is, the volatility of output deviations from trend, has distanced itself further from developments in European partners, with such volatility increasing markedly since 1974.

43.   Predictions of the nature and amplitude of future economic cycles in Portugal are subject to contrasting considerations. On the one hand, Portugal has recently made great strides toward nominal convergence, and price stability has been virtually achieved. Thus, lower price volatility may exert a dampening influence on output fluctuations. On the other hand, as Portugal joins EMU, it will experience further trade and financial market integration and thus be exposed to a set of external shocks that may magnify output fluctuations. Hence, when assessing the likely future nature of Portugal's business cycles to determine the appropriate stance of policies in the medium term, it would be prudent to assume that (i) Portugal will continue to experience stronger output fluctuations than the large industrial

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[16]"An Indicator of Monetary and Financial Conditions in Portugal," (SM/96/253, 10/4/96)

countries in Europe, (ii) the cycles between Portugal and large EU partners will be more closely synchronized, and (iii) the co-movements and relations between output and aggregate demand variables in Portugal will increasingly conform to the stylized facts of the business cycle of other advanced economies, as recalled in this chapter.

44. The main policy implication of continued sharper output fluctuations in comparison to the large EU countries, whose situation will presumably determine the overall stance of monetary policy within EMU, is that Portugal's fiscal policy position will need to be comparatively strong. The underlying fiscal balance in the medium term will, in other words, need to be sufficiently robust to allow the automatic stabilizers to work in the face of economic downturns, while still meeting the requirements of the Stability and Growth Pact.

Table 1. Portugal: Properties of Growth and Cyclical Fluctuations

Output growth rates

	Mean 1/	Mean(Portugal)/ Mean(EU3) 2/	Standard Deviation 1/	SD(post-74)/ SD(pre-74)	SD(Portugal)/ SD(EU3) 2/	Autocorrelation
Portugal						
GDP (1953-1993)	4.63	1.30	2.97		1.41	0.37
GDP (1954-1971)	4.85	0.96	3.31		2.09	-0.03
GDP (1977-1993)	4.27	1.99	2.58	0.78	1.94	0.58
EU3 2/						
GDP (1954-93)	3.56		2.10			0.57
GDP (1954-1971)	5.06		1.59			0.16
GDP (1977-1993)	2.15		1.33	0.84		0.59

Cyclical fluctuations

	Standard Deviation 1/	SD(post-75)/ SD(pre-75)	SD(Portugal)/ SD(EU3) 2/	Autocorrelation
Portugal				
GDP (1953-93)	3.17		2.11	0.62
GDP (1953-1971)	1.90 3/		1.45	0.27
GDP (1977-1993)	3.16 3/	1.66	1.99	0.69
EU3 2/				
GDP (1953-93)	1.50			0.51
GDP (1953-1971)	1.32 4/			0.39
GDP (1977-1993)	1.59 4/	1.21		0.68

Cross correlation between output fluctuations in Portugal and in Germany, France and the UK.

	T-3	T-2	T-1	T	T+1	T+2	T+3
GDP (1953-93)	-0.48	-0.19	0.16	0.57	0.67	0.44	0.04
GDP (1953-1971)	-0.27	-0.24	-0.36	0.04	0.49	0.67	0.15
GDP (1977-1993)	-0.66	-0.19	0.37	0.76	0.87	0.70	0.08

1/ In percent.
2/ EU3 stands for the combined output of Germany, France and the United Kingdom.
3/ The hypothesis that these two variances belong to the same distribution is rejected at the 95 percent confidence
  level. The confidence interval for the variance, assuming that the mean of the distribution in unknown, is distributed as
  Chi-square with (n-1) degrees of freedom.
4/ The hypothesis that these two variances belong to the same distribution cannot be rejected at the 95 percent confidence
  level. The confidence interval for the variance, assuming that the mean of the distribution in unknown, is distributed as
  Chi-square with (n-1) degrees of freedom.

Table 2. Portugal: Moments of De-Trended Series

	Standard deviation	Relative standard deviation	Auto-correlation	Cross Correlation with GDP 1/						
				T-3	T-2	T-1	T	T+1	T+2	T+3
Gross domestic product	3.17	1.00	0.62							
Private consumption	3.24	1.02	0.53	-0.41	-0.05	0.42	0.86	0.71	0.25	-0.31
Non-durables	4.12	1.30	0.50	-0.25	0.07	0.38	0.77	0.60	0.16	-0.35
Durables	8.33	2.63	0.56	-0.23	0.05	0.34	0.64	0.60	0.27	-0.21
Services	3.02	0.95	0.39	-0.53	-0.34	0.23	0.55	0.50	0.24	-0.09
Public consumption	3.85	1.21	0.44	-0.10	-0.05	0.16	0.28	0.29	0.21	0.00
Investment	9.94	3.14	0.56	-0.23	0.27	0.68	0.76	0.35	-0.11	-0.42
Gross fixed investment	9.43	2.98	0.51	-0.40	-0.04	0.44	0.72	0.50	0.08	-0.32
Change in inventories	1.38	0.44	0.14	0.17	0.54	0.51	0.13	-0.25	-0.37	-0.22
Net exports	27.36	8.64	0.57	0.11	-0.21	-0.40	-0.50	-0.37	-0.15	0.12
GDP deflator	4.45	1.41	0.81	0.09	-0.25	-0.55	-0.65	-0.50	-0.24	0.01
Employment	1.48	0.47	0.63	-0.38	0.02	0.49	0.77	0.64	0.14	-0.48
Productivity	2.24	0.71	0.50	-0.41	0.04	0.55	0.91	0.49	0.02	-0.36
Primary sector										
Output	6.14	1.94	0.30	-0.33	-0.17	0.18	0.49	0.30	0.19	-0.25
Employment	1.87	0.59	0.34	0.38	0.20	-0.20	-0.43	-0.48	-0.27	0.00
Productivity	7.01	2.21	0.37	-0.40	-0.20	0.21	0.54	0.39	0.24	-0.22
Manufacturing										
Output	5.62	1.77	0.58	-0.41	0.09	0.57	0.90	0.57	0.03	-0.42
Employment	2.84	0.90	0.62	-0.55	-0.13	0.45	0.76	0.63	0.10	-0.49
Productivity	3.99	1.26	0.48	-0.18	0.21	0.49	0.73	0.37	-0.03	-0.24
Services										
Output	2.01	0.64	0.61	-0.36	-0.01	0.46	0.74	0.54	0.06	-0.40
Employment	2.04	0.64	0.74	-0.11	0.15	0.44	0.64	0.55	0.18	-0.29
Productivity	1.86	0.59	0.62	-0.26	-0.16	0.02	0.11	-0.02	-0.13	-0.11

1/ Correlation coefficients below 0.32 (in absolute terms) are not statistically significant from zero at the 95 percent confidence level in a two-sided test for bi-variate random variables.

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Table 3. Portugal: Moments of De-Trended Series Before and After 1974

	Standard deviation	Relative standard deviation	SD(post74/ SD(pre74)	Auto- correlation	Cross correlation with GDP 1/						
					T-3	T-2	T-1	T	T+1	T+2	T+3
First Sub-Period: 1953-1971											
Gross domestic product	1.90			0.27							
Private consumption	2.13	1 12		0.11	0.02	0.11	0.23	0.42	0.38	0.15	0.02
Public consumption	4.79	2.52		0.42	0.20	0.19	0.58	0.06	-0.21	-0.04	0.09
Investment	4.94	2.60		0.15	-0.39	-0.59	0.04	-0.09	-0.26	-0.20	0.13
Net exports	5.38	2.83		-0.01	0.22	0.23	-0.10	0.68	0.20	0.09	-0.28
GDP deflator	2.25	1.18		0.58	-0.22	-0.55	-0.44	0.02	0.00	0.50	0.38
Employment	0.84	0.44		0.60	-0.59	-0.56	-0.47	0.08	0.35	0.32	0.30
Productivity	2.05	1.08		0.39	0.27	0.17	0.34	0.83	0.01	-0.17	-0.35
Primary sector											
Output	5.86	3.08		0.31	0.53	0.37	0.32	0.24	-0.34	-0.25	-0.38
Employment	1.20	0.63		0.82	0.02	0.03	-0.30	-0.29	-0.13	-0.04	-0.10
Manufacturing											
Output	4.73	2.48		0.30	-0.38	-0.36	-0.25	0.69	0.46	0.10	-0.09
Employment	2.03	1.07		0.49	-0.61	-0.45	-0.11	0.40	0.50	0.43	0.26
Services											
Output	1.03	0.54		0.36	0.30	0.33	0.40	-0.08	-0.01	0.20	0.18
Employment	1.79	0.94		0.86	-0.33	-0.40	-0.44	-0.06	0.17	0.11	0.26
Second Sub-Period: 1977-1993											
Gross domestic product	3.16		1.66	0.69							
Private consumption	3.78	1.20	1.78	0.69	-0.34	0.33	0.78	0.96	0.74	0.22	-0.43
Public consumption	3.09	0.98	0.65	0.62	-0.29	0.17	0.65	0.89	0.90	0.51	-0.15
Investment	11.84	3.75	2.40	0.65	-0.02	0.47	0.78	0.85	0.50	0.04	-0.56
Net exports	41.96	13.29	7.80	0.60	0.07	-0.46	-0.71	-0.80	-0.60	-0.19	0.35
GDP deflator	5.24	1.66	2.33	0.80	0.07	-0.34	-0.75	-0.94	-0.80	-0.48	-0.16
Employment	1.74	0.55	2.08	0.55	-0.39	0.20	0.74	0.88	0.75	0.38	-0.44
Productivity	1.77	0.56	0.86	0.49	-0.17	0.28	0.65	0.91	0.66	0.24	-0.21
Primary sector											
Output	6.64	2.10	1.13	0.35	-0.51	-0.59	0.03	0.37	0.23	0.28	-0.15
Employment	2.35	0.75	1.97	0 06	0.75	0.57	0.11	-0.32	-0.46	-0.38	-0.23
Manufacturing											
Output	4.90	1.55	1.04	0.68	-0.09	0.48	0.85	0.94	0.59	0.06	-0.56
Employment	3.16	1.00	1.55	0.57	-0.59	0.02	0.67	0.92	0.70	0.23	-0.64
Services											
Output	2.35	0.74	2.27	0.75	-0.35	0.10	0.50	0.87	0.95	0.68	0.05
Employment	1.88	0.60	1.05	0.64	-0.49	0.07	0.65	0.84	0.83	0.57	-0.10

1/ Correlation coefficients below 0.32 (in absolute terms) are not statistically significant from zero at the 95 percent confidence level in a two-sided test for bi-variate random variables.

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Table 4. Portugal: Stability Tests for Volatility

	Variance		Confidence interval for post-1974 variance 1/	
	Pre-1974	Post-1974	Minimum	Maximum
Gross domestic product	3.62	9.97	5.87	24.53
Private consumption	4.52	14.30	8.43	35.19
Public consumption	22.92	9.57	5.64	23.53
Investment	24.42	140.29	82.66	345.13
Net exports	28.95	1,760.95	1,037.65	4,332.30
GDP deflator	5.06	27.48	16.19	67.61
Employment	0.70	3.04	1.79	7.47
Productivity	4.19	3.12	1.84	7.67
Primary sector output	34.33	44.14	26.01	108.59
Primary sector employment	1.43	5.54	3.27	13.64
Manufacturing output	22.36	24.03	14.16	59.11
Manufacturing employment	4.12	9.96	5.87	24.49
Services output	1.07	5.51	3.25	13.57
Services employment	3.21	3.55	2.09	8.72

1/ The confidence interval for the variance, assuming that the mean of the distribution in unknown, is distributed as a Chi-square with (n-1) degrees of freedom.

Table 5. Portugal: Stability Test for Autocorrelation and Cross Correlations

	Aurocorrelation 1/		Cross Correlation with GDP 2/	
	F-statistic	Probability	F-statistic	Probability
Gross domestic product	0.81	0.46		
Private consumption	1.35	0.27	1.34	0.28
Public consumption	0.17	0.84	0.12	0.89
Investment	0.71	0.50	2.96	0.07
Net exports	0.26	0.61	8.34	0.01
GDP deflator	0.15	0.86	0.91	0.41
Employment	0.09	0.92	7.81	0.00
Productivity	0.10	0.91	7.81	0.00
Primary sector Output	0.02	0.98	0.27	0.77
Primary sector Employment	1.98	0.16	0.05	0.95
Manufacturing Output	0.68	0.51	0.45	0.64
Manufacturing Employment	0.09	0.91	1.65	0.21
Services Output	0.99	0.38	5.31	0.01
Services Employment	0.86	0.44	3.02	0.06

1/ This is a Chow-test of the stability of the autocorrelation coefficient across periods.
2/ This is a Chow-test of the stability of the contemporanous cross correlation coefficient across periods.

Figure 1. Portugal: International Comparison of Output Fluctuations

OUTPUT FLUCTUATIONS
— Portugal
-- Germany, France and the
   United Kingdom 1/

ptrad21a

9-YEAR ROLLING STANDARD DEVIATION
   OF OUTPUT FLUCTUATIONS
— Portugal
-- Germany, France and the
   United Kingdom 1/

ptrad21b
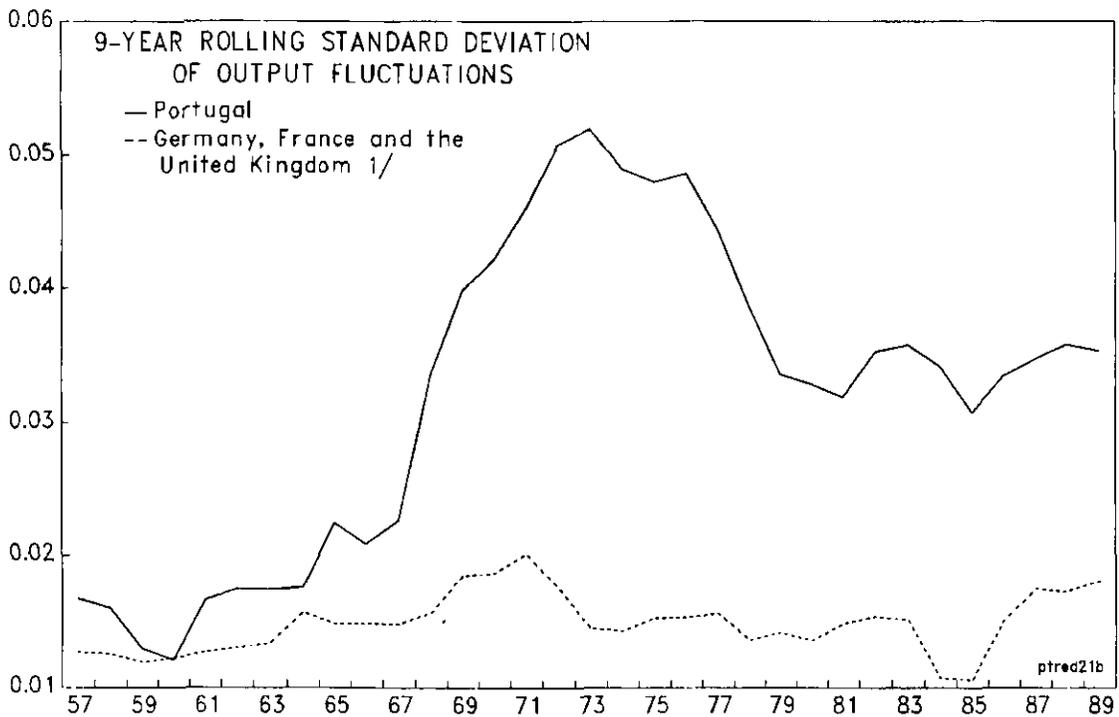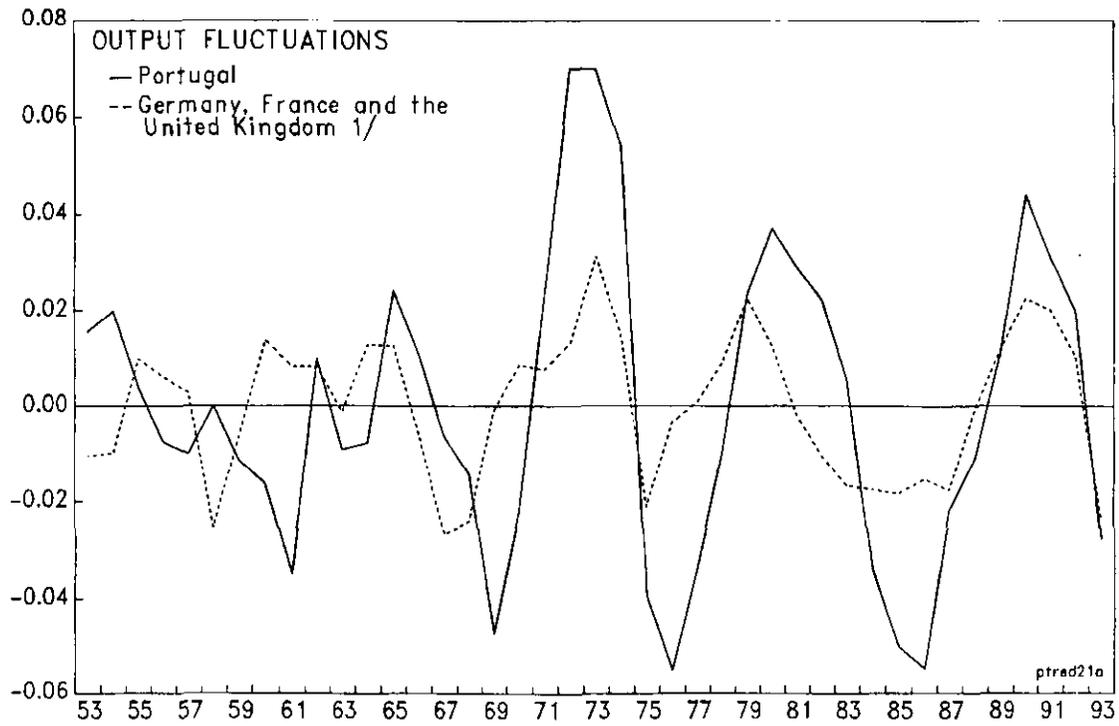
Sources: Bank of Portugal; IMF, World Economic Outlook; and staff calculations.

1/ Cyclical component of combined output series.

Figure 2. Portugal: Output, Trend, and Cyclical Fluctuations
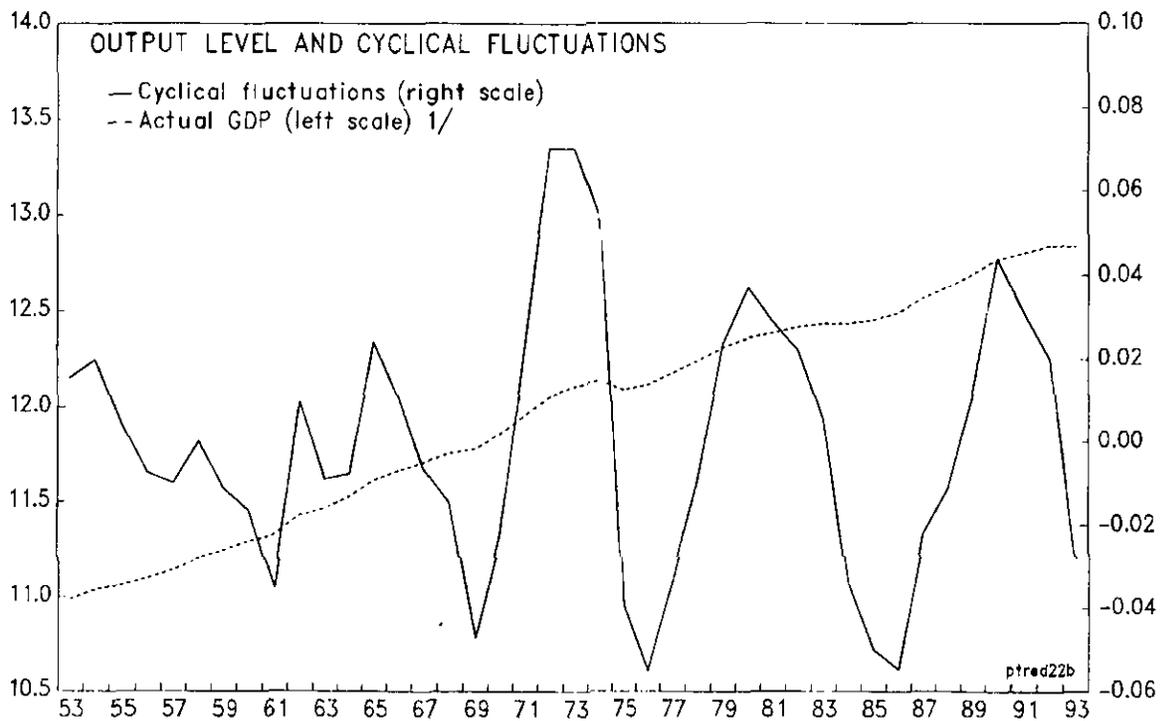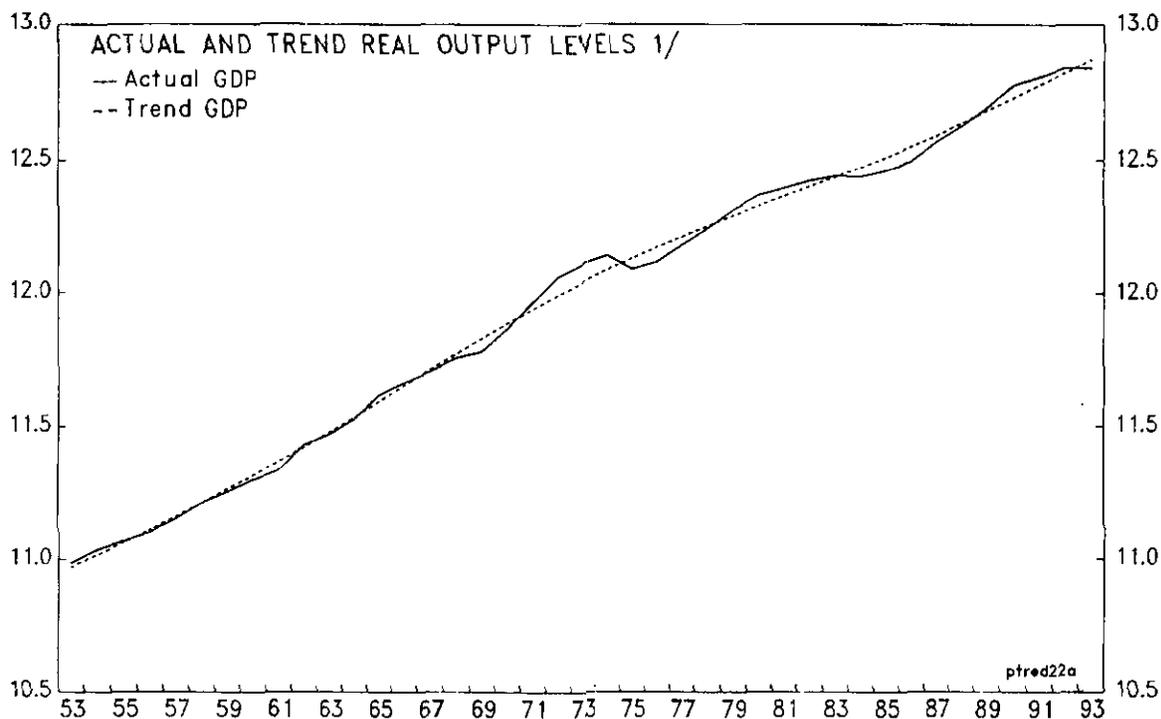
Sources: Bank of Portugal; and staff calculations.

1/ Series expressed in natural logs at 1953 prices.

Figure 3. Portugal: Cyclical Fluctuations of Aggregate Demand Components
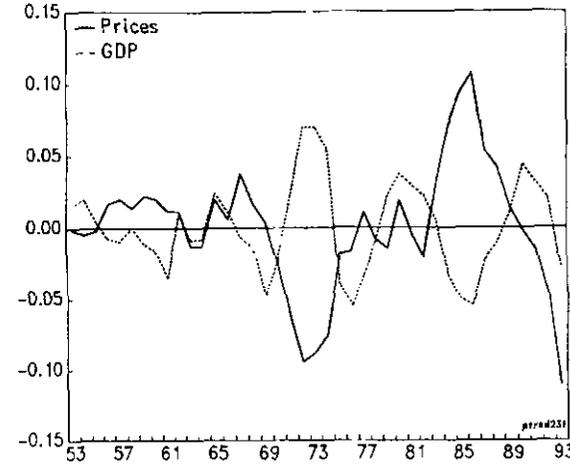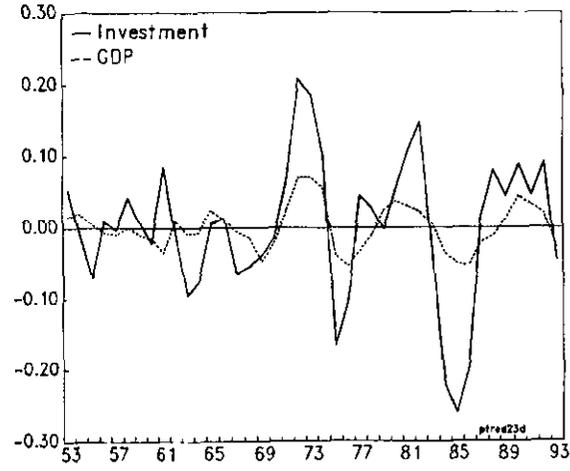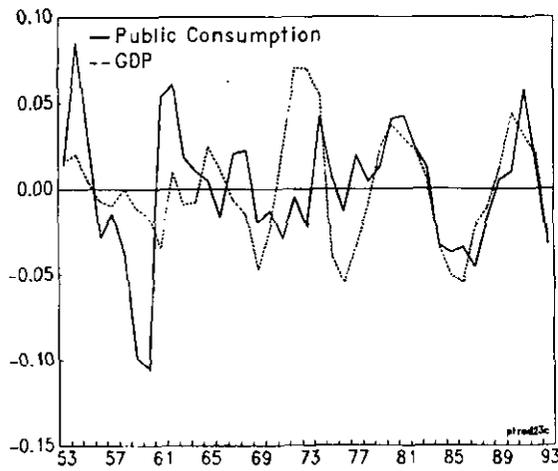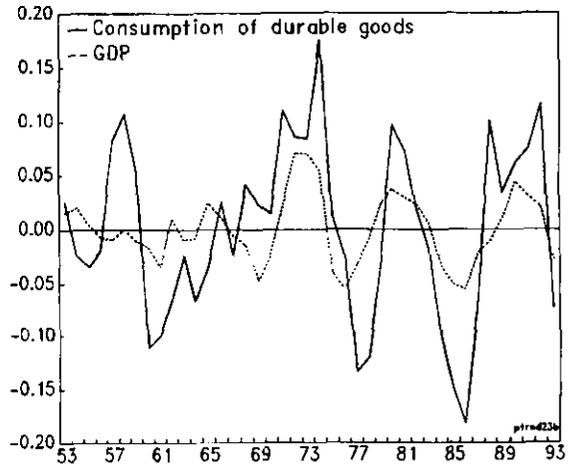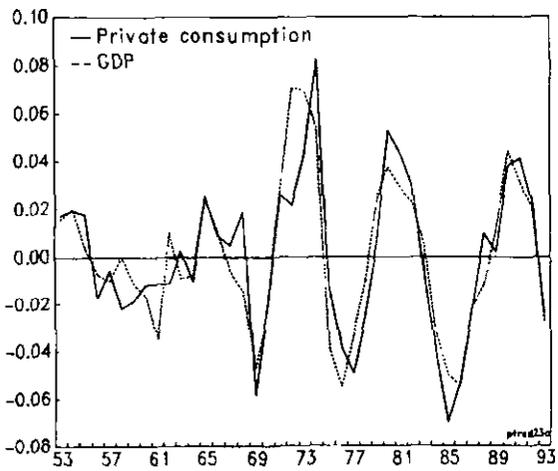
Sources: Bank of Portugal; and staff calculations.

Figure 4. Portugal: Cyclical Fluctuations of Employment and Productive Sectors
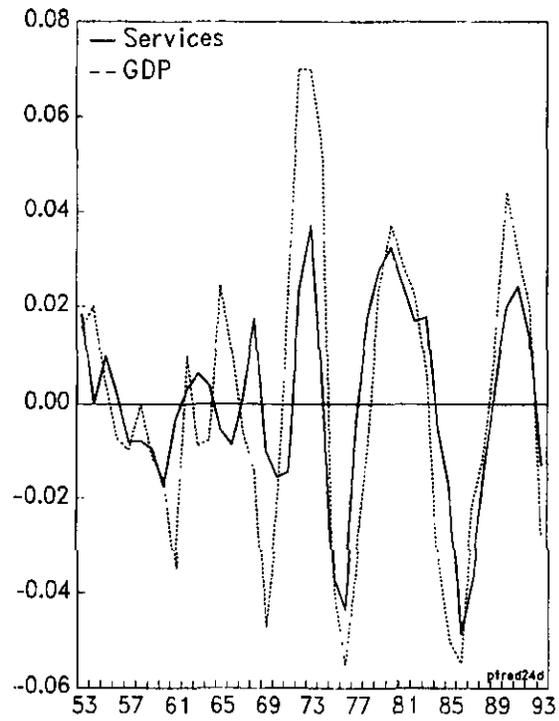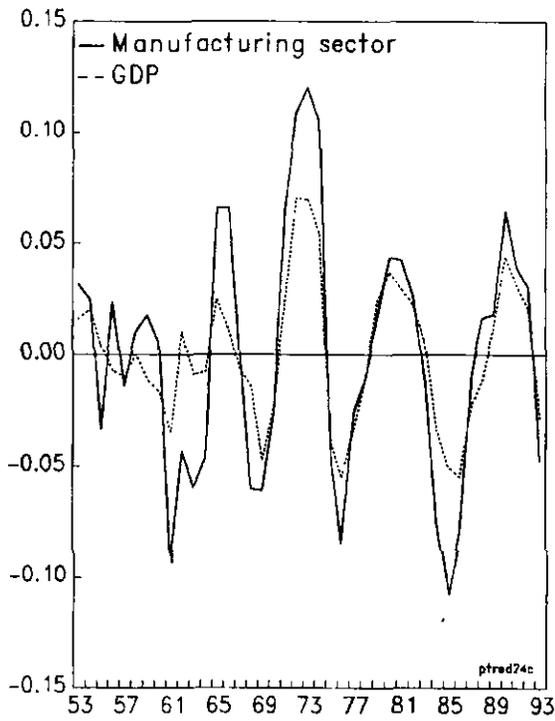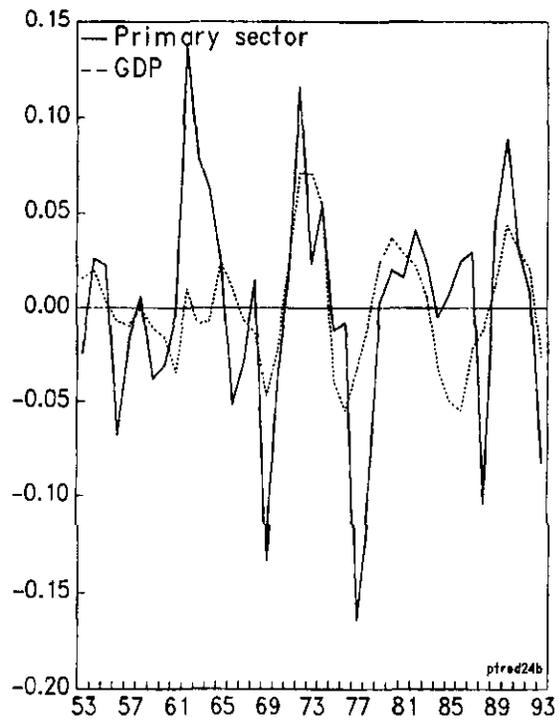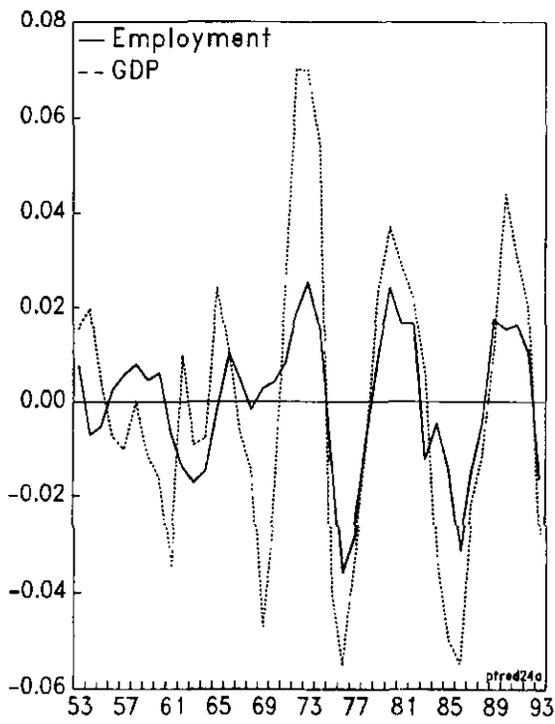
Sources: Bank of Portugal; and staff calculations.

Figure 5. Portugal: The Changing Structure of the Economy
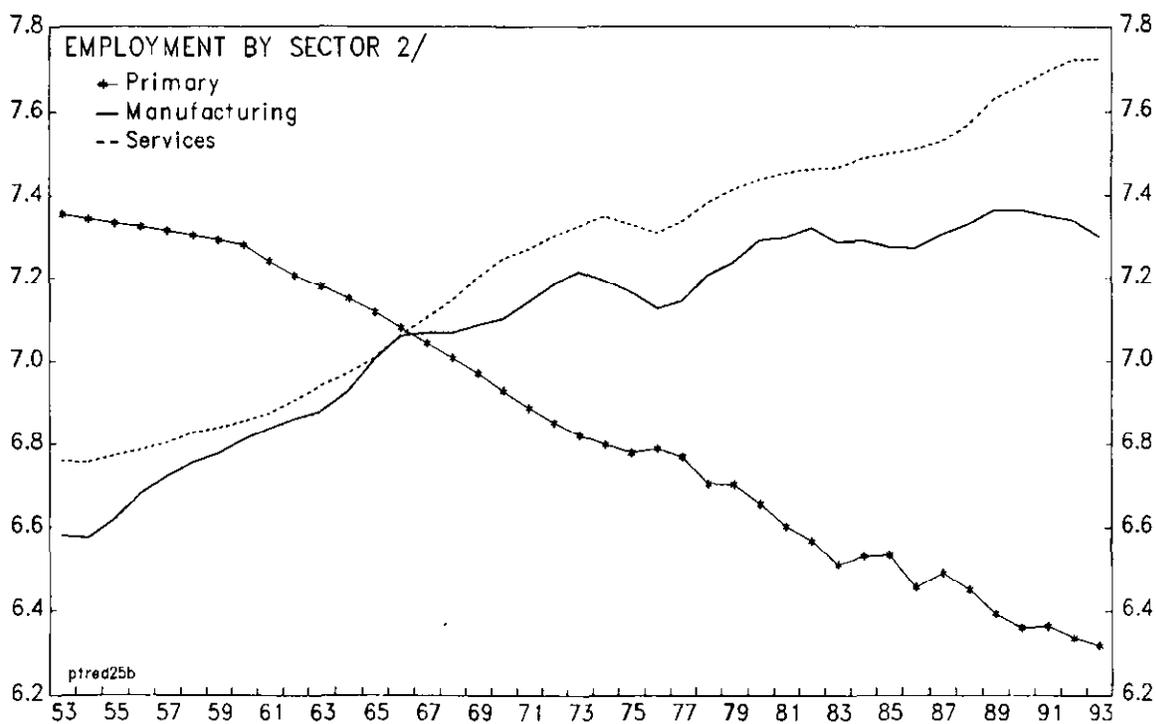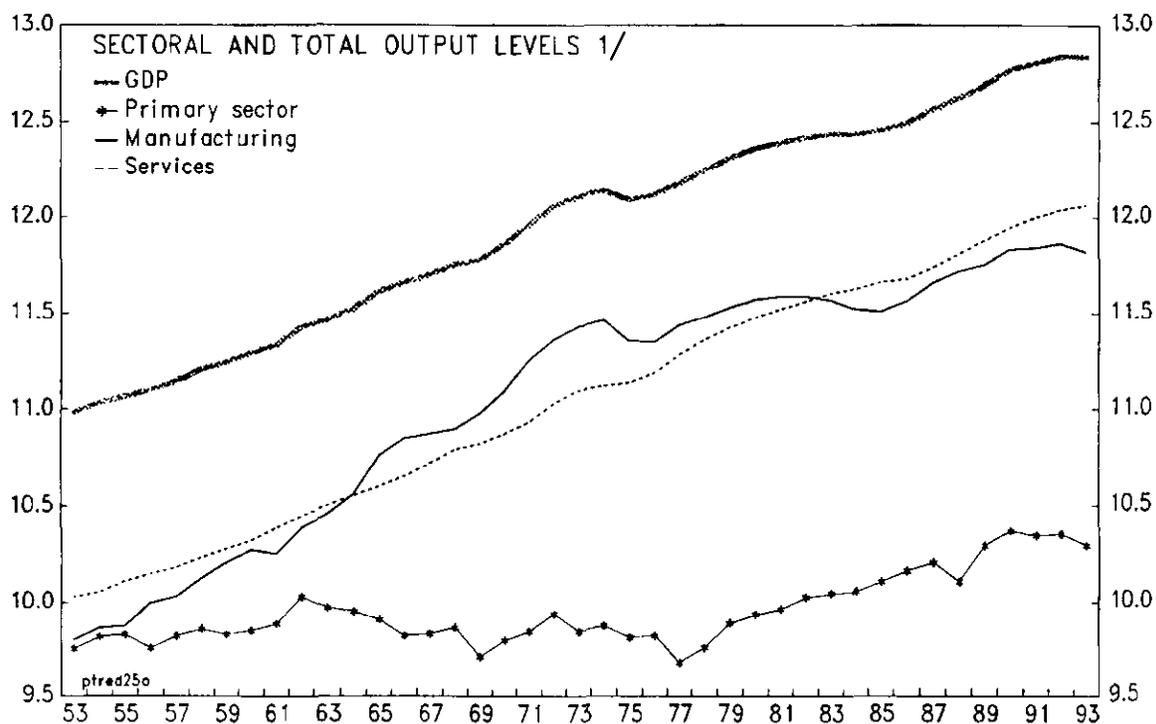
SECTORAL AND TOTAL OUTPUT LEVELS 1/
- GDP
- Primary sector
- Manufacturing
- Services

ptred25o

EMPLOYMENT BY SECTOR 2/
- Primary
- Manufacturing
- Services

ptred25b

Sources: Bank of Portugal; and staff calculations.

1/ Series expressed in natural logs at 1953 prices.
2/ Series expressed in natural logs.

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II. ASPECTS OF THE MONETARY TRANSMISSION MECHANISM[17]

A. Introduction and Overview

45. Portugal's macroeconomic performance during the past decade and a half has been marked by a successful process of nominal and real convergence. Inflation, which stood at more than 20 percent in the early 1980s, has been reduced to just above 2 percent. The success of the disinflation effort can be better gauged by comparing the Portuguese performance against the rest of the EU: the inflation differential between Portugal and the EU average has fallen from a peak of some 22 percentage points in 1994 to virtually zero at present. At the same time, economic growth in Portugal, while exhibiting higher volatility relative to most other European countries, has on average been quite strong, and served to raise GDP per capita from half of the EU average prior to EU accession to some 70 percent at present.

46. The contribution of monetary policy to this performance has been the subject of some public debate, with a broad consensus on a firm, stability-oriented conduct of policy emerging only more recently, as the benefits of such a conduct have become evident. In this context, it would appear worthwhile to attempt to obtain a quantitative sense of the impact of monetary policy on the Portuguese economy. This chapter utilizes an unrestricted vector autoregression (VAR) methodology to characterize some of the patterns of the monetary transmission mechanism in Portugal. The objective is to examine how the monetary authorities' instruments affect some key variables (nominal and real) that may be viewed as the ultimate targets of economic policy, as well as some of the channels through which these effects operate (notably the exchange rate channel).

47. The conduct of monetary policy in Portugal underwent a fundamental shift in the late 1980s, when, under the experience of the high inflation outcomes of the beginning of the decade, monetary and credit targeting were largely abandoned. Instead, and in line with the gradual liberalization of the financial system, the monetary authorities started to rely upon interest rates as their primary policy instrument, and the exchange rate began to play an increasingly prominent role as an intermediate target. Initially, the Portuguese central bank pursued an interest rate policy that was conducive to the support of a shadow peg of the escudo to the ECU (and the deutsche mark). Eventually, this link became a formal intermediate target with the escudo's entry into the ERM in early 1992.

48. While Portugal shares a number of important features with other countries whose currencies participate in the ERM, one crucial difference, particularly relevant for the purposes of the present inquiry, needs to be emphasized. In the case of most of the "core"

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[17]Prepared by Ioannis Halikias and Joaquim Levy.

ERM currencies[18] of northern Europe, the bulk of their respective economies' international trade relations is directed toward Germany and the rest of the core ERM group. Portugal, on the other hand, while also trading heavily with the core ERM area, has at least one important trading partner, namely Spain, which is not part of this area.[19] In this context, the escudo has at times been pulled in opposite directions by its ERM commitments, on the one hand, and by movements in the peseta/deutsche mark exchange rate, on the other.

49.   The empirical investigation of this chapter will be conducted with two broad objectives in mind. First, from a backward-looking or historical perspective, the aim is to get a sense of the direction and magnitude of influence of monetary policy changes on prices and output, and examine some of the channels through which these effects are propagated. Second, from a more forward-looking perspective, we will try to draw some inferences, inevitably of a tentative nature, on the likely impact of EMU on the monetary transmission mechanism in the case of Portugal.

50.   The remainder of the chapter is organized as follows. Section B briefly describes the methodology to be utilized. Section C discusses the empirical findings of a simple 3-variable VAR system linking domestic short-term interest rates to prices and output. Section D looks at a more complicated system, which examines separately the impact of the German and domestic premium components of the Portuguese interest rate, and also considers the importance of the effective exchange rate as a transmission channel. Section E takes a closer look at the exchange rate channel, by examining the impact of a change in German interest rates on certain key bilateral exchange rates. Section F discusses some implications of the empirical findings for the monetary transmission mechanism under EMU. Section G contains concluding remarks.

B. The VAR Methodology

51.   Empirical investigation of the monetary transmission mechanism typically attempts to describe how changes in certain key variables, whether policy instruments or intermediate transmission channels, affect the nominal and real variables that constitute the policy makers' ultimate targets. Since the application of the VAR methodology to the study of monetary transmission in the United States by Sims (1980, 1982, 1986), and its further refinement by

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[18]It should be stressed that the distinction between "core" and "noncore" currencies made in this chapter has no normative implications, that is, it does not refer to possible differences in policy objectives. Rather, it is a positive distinction relating to the actual historical degree of exchange rate fluctuation around a currency's central parity.

[19]In this regard, the Portuguese situation is not unlike that of Ireland.

Litterman and Weiss (1984), the methodology has become a standard empirical tool in this area, being more recently applied to a number of European countries.[20]

52.   In essence,[21] VAR models attempt to explain a set of variables in terms of the lags of all the variables under consideration. For the specific case of the monetary transmission mechanism, the list would typically include policy instruments, intermediate targets or other transmission variables, and final target variables. On the basis of the estimates obtained from the VAR system, one can compute the so-called **impulse response functions**, which summarize the impact of a shock to the (orthogonal component of) each variable under consideration on all the variables of the system, including itself, thus capturing the essence of the transmission of monetary impulses across the economy. The attractiveness of the VAR methodology relative to more traditional large-scale econometric models stems from its simplicity and ease of implementation (at no apparent loss of predictive power), the need to impose much fewer a priori restrictions in order to achieve identification, its rich and unrestricted lag structure which provides a good safeguard against econometric pitfalls such as spurious correlation, and the ability to provide efficient estimates on the basis of much shorter samples that do not contain policy regime switches or other significant institutional changes.

53.   These advantages notwithstanding, one still needs to impose (relatively few) restrictions in order to achieve identification of a VAR model. The more standard approach, also adopted for the purposes of this chapter, entails imposing a recursive structure on the contemporaneous part of the system, while maintaining an unrestricted lag structure. While this identification scheme results in no loss in terms of predictive power, it renders inferences about the underlying economic structure rather perilous. Thus, some researchers prefer the so-called "structural" VAR approach, which imposes contemporaneous restrictions based on the implications of particular theoretical models. While this latter approach is itself subject to some pitfalls,[22] it enables one to test more formally whether the data are consistent with one class of theoretical models rather than another. Accordingly, for the purposes of this chapter, inferences about competing underlying models that could describe the Portuguese economy, especially as relating to the nature of shocks that may be affecting certain key variables, will be kept to a minimum and will be made with a great deal of caution.

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[20]See, for instance, Dale and Haldane (1993) on the United Kingdom; Escrivá and Haldane (1994) on Spain; Garretsen and Swank (1994) and Halikias and Levy (1996) on the Netherlands; Levy and Halikias (1997) on France; as well as Barran, Coudert and Mojon (1996) on selected European countries (unfortunately excluding Portugal).

[21]For details on the methodology used in this chapter, see Levy and Halikias (1997).

[22]See, for example, Faust and Leeper (1994) for a critique of "structural" long-run identification restrictions.

C. The Link Between Interest Rates, Prices, and Output:
Evidence from a Simple VAR System

54.   This section starts off by examining a very simple 3-variable VAR model of the monetary transmission mechanism for Portugal. This model consists of a nominal short-term interest rate as the authorities' policy instrument, and the consumer price index and real output as target policy variables.[23] Given its simple structure, the model is entirely cryptic about the channels of transmission of monetary policy impulses. The model has a 6-lag structure,[24] and was estimated over the 1986–95 period using monthly data.

55.   As monthly data for real GDP are not available, the output variable was constructed by quarterly real GDP interpolated on the basis of seasonally adjusted industrial production. While industrial production data are recognized to be of lower quality relative to GDP data, reliance on monthly data was on balance deemed to be preferable to the obvious alternative of using quarterly data and employing actual GDP as the output variable, as this latter alternative would have entailed moving the start date of the sample at least well into the 1970s in order to ensure adequate degrees of freedom. In turn, such a long sample would have contained periods of very different monetary policy regimes, as alluded to in the introduction—indeed, mere inspection of the extreme interest rate volatility prior to the mid–1980s would suggest that interpreting the interest rate as the monetary policy instrument would have been inappropriate. Under these conditions, estimates from the longer sample would have been highly unreliable for forecasting purposes.

56.   For the purposes of identification, the contemporaneous recursive structure employed entails an ordering of the variables of the system that allows the interest rate to affect both prices and output within the month, and prices to affect only output (but not the interest rate) within the month, but restricts output to affect neither the interest rate nor prices within the month. This ordering can be justified on the basis of information lags with which economic data become available.

57.   Figure 6 plots the impulse response functions of this 3-variable VAR system, with a forecast horizon of 48 months. These impulse responses describe the impact of a one standard deviation shock to each variable of the system on all other variables, including itself. The chart also plots one standard deviation confidence intervals around the impulse responses.[25]

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[23]In this chapter, all variables are expressed in natural logarithms, except for interest rates which are expressed in percent. Variable definitions, notation, and data sources are provided in the Appendix.

[24]The length of the lag structure was chosen on the basis of the Akaike criterion.

[25]The confidence intervals were computed on the basis of Monte Carlo draws.

58.   A number of features of the impulse response functions of Figure 6 deserve comment. It should first be noted that a positive interest rate shock exerts a dampening effect on output. The effect turns statistically significant about a year after the shock and is quite persistent, lasting throughout the forecast horizon. Other features of Figure 6 are also suggestive. Thus, shocks to output during the sample period considered appear to have been predominantly of a demand side nature. Although the specification employed does not allow one to distinguish between real and nominal demand shocks, a positive shock to output has tended to be associated by a significant rise in prices and a tightening of interest rates by the monetary authorities. This, however, should not be interpreted as implying that supply shocks have been absent during the period under consideration. In fact, as regards shocks to prices, supply side shocks appear to dominate historically: thus, a positive shock to prices appears to entail, following a brief period after the shock, a dampening (albeit only marginally significant) effect on output and an eventual loosening of interest rates by the monetary authorities. Given that relevant structural identifying restrictions[26] have not been imposed in the specification, one cannot say much more about the relative magnitude of supply versus demand shocks.

59.   A somewhat puzzling feature of Figure 6 relates to the estimated impact of an interest rate shock on prices. Thus, a positive shock to the Portuguese short-term interest rate is estimated to initially entail an **increase** in the CPI above its baseline path, with the effect being statistically significant for over a year. While prices are estimated to start falling eventually, and the point estimate falls below the baseline path two years after the shock, this latter effect never becomes statistically significant. This behavior of prices in response to an interest rate increase could thus raise doubts about the traditional view of an interest rate hike as an anti-inflationary policy action.

60.   While the above behavior of prices in response to an interest rate change may appear counter-intuitive, it is by no means uncommon in the empirical literature on the transmission mechanism—it is sometimes referred to as the "price puzzle." Indeed, this observed counter-intuitive effect in the case of Portugal is much less extreme compared to the findings for other EU countries, where the price level has been estimated to remain above its baseline path over much longer horizons in response to a positive interest rate shock.[27] A typical explanation, consistent with the interpretation of an interest rate innovation as a monetary policy shock, rests on the assumption of superior information about inflationary pressures on the part of the monetary authorities relative to other economic agents (and also relative to the information content of the variables of the system under consideration). In such circumstances, in a situation where the monetary authorities know that inflationary pressures are likely to emerge in the future, they may engage in a pre-emptive interest rate tightening that would tend to be associated with an increase in prices above the VAR baseline (albeit by less than if the policy action had not been taken) and by a contraction in output.

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[26]These restrictions would have to be long-run restrictions of the type first considered by Blanchard and Quah (1989).

[27]See, for example, Sims (1992).

61. It should be pointed out that the effect described above should not be interpreted as implying that positive shocks to the **real** interest rate did not have an anti-inflationary impact in the case of Portugal during the period under consideration. In fact, given the very sharp decline in inflation during this period (at the start of the sample inflation was still as high as 12 percent), movements in the nominal short-term interest rate may have been dominated by movements in inflation rather than by movements in the real rate, in ways not fully captured by the lag structure employed. In that sense, the nominal short-term interest rate, which is typically utilized in the literature on the transmission mechanism as the monetary policy instrument, may be an imperfect indicator of the stance of monetary policy. In addition, the simple structure of the system considered in this section, and in particular the noninclusion of the relevant transmission channels (especially the exchange rate), may also impair the interpretation of an interest rate shock. Specifically, the framework of this section would not adequately capture contemporaneous causality chains running from exchange market pressure (partly linked to inflationary shocks), to escudo depreciation and interest rate hikes to limit this depreciation, and finally (possibly with a lag) to prices and output.

62. In view of these considerations, the 3-variable VAR system was re-estimated, substituting the real for the nominal short-term interest rate. The corresponding impulse response functions are presented in Figure 7. The estimation results summarized in Figure 7 provide a very different picture of the impact of the interest rate variable on prices relative to those of Figure 6. In effect, the "price puzzle" disappears: a positive shock to the real interest rate is now associated with a steady decline of the CPI below its baseline path, with the effect remaining statistically significant throughout the forecast period.

63. Most of the remaining conclusions of Figure 6 remain valid under the new specification as well. Thus, a positive shock to the real interest rate is once again estimated to exert a depressing effect on output, which turns statistically significant a year after the shock. In addition, shocks to output again appear to be predominantly on the demand side, with a positive output shock associated with an increase in prices, and shocks to prices predominantly on the supply side, with output moving in the opposite direction.

D. An Extended VAR System

64. While the estimation results of the 3-variable VAR system of the previous section provide a broad picture of the patterns of monetary transmission during the past decade, the simplicity of the specification inevitably leaves some important questions unanswered. In particular, the model of the previous section is silent about the channels through which monetary policy impulses are transmitted to the economy. In addition, it fails to do adequate justice to the specificities of the Portuguese monetary policy "regime" during the period under consideration. This section attempts to address these shortcomings, at least partially, by extending the underlying framework in two directions: a decomposition of the short-term interest rate variable into an anchor currency and a domestic premium component, and explicit consideration of the exchange rate as a transmission channel.

65.   The first extension of the VAR system of the previous section relates to the specification of the interest rate variable. Instead of utilizing the **overall** Portuguese short-term interest rate, we consider separately the impact of two components of this rate: the anchor currency interest rate, captured by the German short-term rate, and the domestic premium over the German rate. This specification would appear to capture better the workings of the monetary policy regime during the period under consideration, that is, the initial informal pegging of the escudo and its subsequent formal participation in the ERM. In this setting, maintenance of the escudo's peg would suggest that the monetary authorities should follow closely German interest rate changes, while relying on changes in the premium for the defense of the peg during periods of exchange market pressures. As such, it can be expected that the two components of the Portuguese interest rate would be driven by two very different sets of factors, so that aggregating them for the purposes of the VAR system would entail a substantial loss of information regarding their stochastic properties.

66.   In addition, a theoretical argument could be made that the impact of the two components of the interest rate on some of the intermediate transmission variables and final target variables under consideration may be very different, so that their separate consideration would be warranted.[28] First, changes in the two components of the short-term interest rate could have quite different effects on the yield curve. Thus, an increase in the German short-term rate can be expected to have a strong impact on German (and hence Portuguese) long rates, at least to the extent that the traditional term structure effect operates. By contrast, an increase in the premium to provide short-term support to the escudo may have less of an effect on Portuguese long-term rates, to the extent that longer-term credibility of the exchange rate peg is maintained. Even if the exchange rate pressure reflects market doubts about the longer-term sustainability of the peg, so that Portuguese long-term rates do go up, it would be reasonable to assume that the escudo's expected depreciation would be associated with increased inflationary expectations, so that the ex ante **real** interest rate would rise by less than the nominal long-term interest rate.[29]

67.   Second, and perhaps more important for the case at hand, the impact of the two components of the short-term interest rate on the escudo's exchange rate could be quite different. On the one hand, an increase in the premium could entail an effective appreciation of the escudo, to the extent that Portugal has historically been more successful in supporting its deutsche mark exchange rate during episodes of ERM-wide turmoil relative to other noncore countries that constitute important trading partners. On the other hand, an increase in German interest rates could have less of an effect on the escudo's effective exchange rate, to the extent that other ERM participants have been prepared to follow with an interest rate tightening of their own in response.

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[28]For a more detailed presentation of the argument, see Levy and Halikias (1997).

[29]In fact, if purchasing power parity holds, there would be no effect on the real long-term rate.

68.   Third, it could be argued that, given the persistence, well into the 1990s, of substantial inflation differentials relative to the core ERM economies, the task of disinflation imposed a heavier burden on monetary policy in Portugal compared to this latter group of countries. In this context, and notwithstanding the increased importance of the exchange rate as an intermediate target, the Portuguese monetary authorities may have been at times reluctant to immediately follow an easing of interest rates in Germany. At the same time, with the persistence of an appreciable inflation differential putting pressure on the escudo's deutsche mark peg during episodes of ERM-wide strain, the Portuguese monetary authorities could resort to increases in the premium, both to limit the extent of the depreciation and to dampen its inflationary impact. Under these conditions, changes in the interest rate premium may have at times provided a stronger signal of the stance of monetary policy relative to the anchor currency interest rate, with the bulk of the effects in question propagated directly from changes in the premium to prices and output.

69.   The second extension of the framework of the preceding section aims at providing some insight into the channels through which monetary policy shocks have been propagated during the period under consideration. While the shortness of the sample limited the potential number of such channels that could be examined,[30] the exchange rate channel clearly warranted particular attention. In the first place, it can be expected to be a strong transmission channel, given Portugal's status as a small, open economy. Second, the nature of the monetary policy regime, which aims at "exchange rate stability" within the ERM as the intermediate target to achieve price stability, indicates that exchange rate developments have an important influence on monetary policy actions. Finally, it would be interesting to get a sense of the Portuguese economy's sensitivity to autonomous (that is, not related to interest rates) exchange rate shocks.

70.   That said, the question remains as to which exchange rate to use for the purposes of this investigation. Unfortunately, there is no unambiguous answer to this question. On the one hand, given the monetary policy regime, the escudo/deutsche mark bilateral exchange rate would appear to be the relevant variable in terms of having an impact on the monetary authorities' policy instrument. On the other hand, it could be argued that the escudo's effective exchange rate would be more relevant as a channel of transmission of monetary policy shocks to the target policy variables, that is, prices and output. In view of these considerations, two alternative specifications were estimated, one involving the escudo's nominal effective exchange rate and the other the escudo/deutsche mark bilateral rate as the exchange rate transmission variable. Due to space considerations, only the results of the former specification are presented and discussed in this section; the impulse response functions based on the latter specification are presented in Figure 9.[31]

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[30]Transmission channels typically considered in the literature include long-term interest rates, as well as money and credit aggregates.

[31]Both the effective and bilateral rates of the escudo have been defined so that an increase

71.   The new 5-variable system was also estimated using monthly data over the period 1986-95. Figure 8 reports the impulse response functions associated with the model, showing the impact of a one standard deviation shock to each variable to all other variables of the system (including itself) over a period of 48 months.

72.   The impulse response functions of Figure 8 contain some noteworthy features. In the first place, they shed some light on the policy reactions of the monetary authorities in response to a monetary policy action in Germany. Within the framework of the VAR under consideration, a shock to the German short-term interest rate is estimated to be quite persistent, with the interest rate remaining (statistically) significantly above its baseline path for almost 30 months after the shock. In this context, the Portuguese monetary authorities can be seen to react quickly, with the premium returning to its baseline path within two months after the German interest rate shock, and remaining at its baseline level throughout the simulation period.

73.   The estimation results of Figure 8 suggest that the decomposition of the Portuguese short-term interest rate into its anchor currency and domestic premium components is indeed quite fruitful, as shocks to each of the two components are estimated to have quite different effects on prices and output. Thus, an **increase in the interest rate premium** is estimated to lead to a substantial fall in both prices and output below their respective baseline path; these effects remain statistically significant throughout the simulation horizon. By contrast, a one standard deviation positive **shock to the German interest rate** is estimated to entail virtually no change in output throughout the simulation horizon, while its impact on prices is once again counterintuitive, with the CPI remaining significantly above its baseline path for some 30 months after the German interest rate shock.

74.   The strong estimated impact of changes in the interest rate premium on output would appear to provide some insight into the variability of output growth in Portugal, which—as noted in Chapter I of this paper—has been found to be higher than other EU countries. Thus, frequent recourse to the interest rate instrument to provide support to the exchange rate, and the subsequent reductions in the interest rate premium as exchange market pressures subsided, may have been an important factor accounting for the observed volatility in output growth. While it could be argued in this connection that a small, open economy like Portugal is inherently more sensitive to industry-specific shocks that could account for higher output variability, it should be noted that some relatively small core ERM countries, such as Belgium and the Netherlands, have experienced much more stable growth rates during the 1990s—compared to Portugal as well as to the larger core ERM economies.

75.   Given the very different estimated response of output to changes in the German interest rate and the domestic premium, it is of interest to explore which factors could account

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[31](...continued)
stands for an appreciation and a decrease for a depreciation.

for this asymmetry. In this regard, the estimation results of Figure 8 would suggest that the different impact of these two types of interest rate changes on the **escudo's effective exchange rate** could be an important part of the story. Specifically, changes in the interest rate premium were found to have a much more persistent impact on the effective exchange rate compared to corresponding changes in the German component of Portuguese short-term interest rates. Thus, a one standard deviation positive shock to the interest rate premium was estimated to entail a strong effective appreciation, which remains statistically significant some 36 months following the shock. By contrast, a one standard deviation positive shock to the German short-term interest rate was estimated to result in a much less persistent effective appreciation, with the effect turning statistically insignificant less than a year following the shock.

76. That said, the estimated effective appreciation of the escudo, albeit rather small and transitory, in response to an increase in the German interest rate deserves some comment. This result is particularly interesting given the finding reported in Figure 9 (in which the **bilateral escudo/deutsche mark rate** is used as the exchange rate transmission variable) that the escudo tends to depreciate vis-à-vis the deutsche mark in the wake of an increase in the German short-term interest rate. This in turn raises the question as to which currencies the escudo appreciates against, in order to more than offset its depreciation against the German currency. This question, which provides some insight both into past patterns of monetary transmission, highlighting in a sense Portugal's "positioning" in-between the core ERM countries and Spain as far as exchange rate movements go, and into the implications of EMU for Portugal, is taken up in the following sections.

77. While the estimation results suggest a very different response of output to changes in the two components of the short-term interest rate, it should be acknowledged that the interpretation of a change in the anchor currency interest rate component is not unambiguous. Specifically, the VAR system of this section cannot claim to offer a satisfactory account of the determinants of German short-term rates. To the extent that such omitted variables also have an impact on some variables of the system under consideration, interpreting a shock to the German rate as a "true" innovation in German monetary policy would appear somewhat problematic. For instance, if strong economic activity in the core ERM area is prompting German monetary policy tightening while at the same time boosting exports in Portugal, one could observe higher German rates to be associated with higher prices and stronger activity in Portugal, but this association should not be interpreted as carrying causality indications. Indeed, estimation of a system that **controls for economic activity in the core ERM**[32] revealed that a shock to the German interest rate entails a small (but statistically insignificant)

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[32]This was done by including German GDP growth alternatively as an additional endogenous variable or as an exogenous variable in the VAR system—because of the recursive contemporaneous structure of the model, the statistical issues arising from exogeneity discussed in Dias, Machado and Pinheiro (1996) do not arise. On space considerations, the results are not reported, but are available from the authors upon request.

dampening impact on Portuguese output, while also going some way toward addressing the "price puzzle" mentioned above.

78.   The impulse response functions of Figure 8 also provide some insight into the impact of "autonomous" (i.e. orthogonal to interest rates) **shocks to the escudo's effective exchange rate**. A one standard deviation appreciation of this exchange rate is estimated to have a strong and persistent depressing effect on both prices and output. The effect on prices is felt on impact, and the CPI remains significantly below its baseline path throughout the simulation horizon. The effect on output turns statistically significant some 6 months after the shock, and similarly remains statistically significant almost throughout the remainder of the forecast horizon. The strength of these effects highlights the status of Portugal as a small, open economy.

79.   Finally, the estimation results reported in Figure 8 tend to modify somewhat the conclusions regarding the relative importance of demand versus supply shocks reached in the previous section. Thus, the estimated impact of a positive **shock to output** in Portugal once again points to the dominance of demand-side shocks, as it is associated with a persistent (and statistically significant) increase in the price level above its baseline path. What appears somewhat problematic with regard to this interpretation is the behavior of the exchange rate, as the positive shock to output is estimated to entail an effective depreciation of the escudo for about a year after the shock. The "demand-side" interpretation may, however, be salvaged to the extent that demand shocks have originated predominantly in the area of fiscal policy during the period under consideration: empirical results from a number of EU countries suggest that episodes of fiscal expansion have often tended to undermine exchange rate credibility, leading to a weakening of the currencies concerned. On the other hand, the results of the 5-variable VAR of this section fail to bear out the conclusion of the previous section that **shocks to the price level** seem to reflect predominantly supply-side shocks. The impact of a one standard deviation shock to the price level on output is very weak and turns out to be statistically insignificant almost throughout the forecast horizon.

E.   A Closer Look at the Exchange Rate Channel

80.   The empirical results of the previous section raised some questions about the impact of a shock to the German interest rate, as transmitted by the exchange rate channel. Specifically, a positive shock to the German rate, while estimated to entail a depreciation of the escudo vis-à-vis the deutsche mark, was also estimated to result in the Portuguese currency's effective appreciation. This would suggest, by definition, that the escudo must be appreciating against some other currencies, to such an extent as to more than offset its depreciation against the deutsche mark.

81.   A brief investigation of the direction of impact of interest rate changes on a number of bilateral escudo exchange rates would appear worthwhile for a number of reasons. From a backward-looking perspective, it could provide a sense of the implications for Portugal of the combination of ERM participation and close trade integration with a noncore ERM country.

From a more forward-looking perspective, it may provide indications about monetary transmission under EMU, when certain key bilateral exchange rates will be permanently locked—an issue which will be taken up in the next section. From both of these perspectives, it would be interesting to determine whether the bulk of the escudo's effective appreciation in the wake of a positive shock to the German short-term interest rate is related to an appreciation of the deutsche mark bloc against non-ERM currencies, or whether it occurs against noncore ERM currencies.

82.   To gain some insight into these questions, a 4-variable VAR system is specified and estimated. The system includes the following variables: the German short-term interest rate; the deutsche mark/dollar exchange rate, as a proxy for exchange rate movements of the deutsche mark bloc against non-ERM currencies; the escudo/deutsche mark exchange rate; and the escudo/peseta exchange rate, to capture movements in the escudo vis-à-vis a noncore currency of a key trading partner. The impulse response functions associated with this VAR system are reported in Figure 10.

83.   The empirical results of Figure 10 reveal certain interesting patterns regarding the impact of changes in the German short-term interest rate. In the first place, they confirm the earlier result that a one standard deviation positive shock to the German short-term rate entails a depreciation of the escudo against the deutsche mark. This effect remains statistically significant throughout the forecasting horizon. Second, the same German interest rate shock results in an appreciation of the deutsche mark vis-à-vis the dollar. While this effect turns marginally significant after some 6 months, its magnitude is quite small. In fact, combined with the escudo's depreciation against the deutsche mark, this suggests that a "deutsche mark bloc effect" **cannot** account for the escudo's estimated effective appreciation.

84.   Rather, the dominant source of this effective appreciation is revealed by the estimated impact of the shock to the German rate on the escudo/peseta bilateral rate. Thus, following the shock, the escudo is estimated to appreciate against the Spanish currency. The effect occurs virtually on impact, is quite large, and persists throughout the forecasting horizon. It would thus appear that it is this last effect which constitutes the source of the escudo's effective appreciation, despite its depreciation against the deutsche mark.

85.   The effects just discussed provide an important insight into the patterns through which monetary policy impulses have been transmitted under the ERM in the case of Portugal during the period under consideration. The empirical results obtained above suggest that a monetary contraction in the anchor country has tended to exacerbate exchange rate pressures on the currencies of the noncore countries. In the case of Portugal, such a monetary shock has tended to create a rather tricky situation, given that a large noncore ERM country, namely Spain, is a key trading partner. The impulse response functions of Figure 10 indicate that, on average, the escudo has been steered somewhere in-between the core currencies and the peseta in the wake of such policy shocks. In fact, it would appear that, under these conditions, the escudo has generally appreciated against the peseta by more than it depreciated against the deutsche mark, thus accounting (given the relative importance of Germany and Spain as

Portugal's trading partners) for the currency's small effective appreciation, as documented in the empirical results of the previous section.

86.   The estimated impact of an autonomous shock to the deutsche mark/dollar rate, on the basis of Figure 10, is also worth noting. Research on a number of European countries whose currencies participate in the ERM has tended to indicate that, at least in certain cases, changes in the deutsche mark/dollar cross rate has tended to affect the bilateral rates of these currencies vis-à-vis the deutsche mark.[33] Specifically, an appreciation of the deutsche mark against the dollar has sometimes been found to be also associated with a weakening of a number of other ERM currencies against the deutsche mark, an effect possibly reflecting the reserve currency status of the dollar and the deutsche mark. The empirical results of this section suggest that such an effect may also have been relevant for Portugal, at least to some extent, during the period under consideration. Thus, the impulse response functions of Figure 9 indicate that a positive shock (appreciation) of the deutsche mark against the dollar has tended to entail a depreciation of the escudo against the German currency. While the effect is estimated to occur on impact, it appears to be very short-lived, turning statistically insignificant some 4 months after the shock.

F. The Implications for EMU

87.   A question that naturally arises relates to whether the empirical results obtained so far can shed some light on the likely impact of EMU on the monetary transmission mechanism in the case of Portugal. It should be emphasized at the outset that this question needs to be approached with a great deal of caution. After all, EMU would constitute a fundamental policy regime switch, entailing a new institution charged with the conduct of monetary policy under potentially different policy objectives and utilizing potentially different policy instruments. In this context, the behavior of economic agents, which presumably has been reflected in the empirical results of this chapter, could change in fundamental ways. In that sense, relying on empirical results obtained on the basis of a historical sample to make inferences about the monetary transmission under EMU could be quite hazardous.[34] Furthermore, even if behavior were to remain fundamentally unchanged, EMU could entail major changes in the distribution of shocks affecting the economy. For instance, some recent research has tended to indicate that an important share of (asymmetric) demand shocks in the ERM area can be traced to fiscal policy. It would appear particularly difficult to predict the size, and even the direction, of changes in the distribution of such shocks under the post-EMU Stability and Growth Pact.

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[33]See, for example, Giavazzi and Giovannini (1986).

[34]It should be recalled that, despite its advantages, a VAR system is still a reduced-form model, and as such remains vulnerable to the Lucas (1974) critique in the face of fundamental policy regime shifts.

88.   With these important caveats in mind, this section addresses the potential impact of EMU on the transmission mechanism from a rather narrow perspective. Specifically, it utilizes the empirical results obtained to inquire about the likely impact of the elimination of the interest rate premium (or at least that portion of the premium that reflects expectations of exchange rate changes) and the permanent locking of the cross exchange rates between prospective EMU members. On both accounts, it could be postulated that the impact of EMU in the case of Portugal may be rather benign.

89.   The empirical results of this chapter pointed to a rather strong impact of changes in the premium over the anchor currency interest rate (compared to changes in the anchor currency interest rate itself) on economic activity in Portugal. On this basis, one could postulate a link between the high volatility of the interest rate premium (which has constituted the main instrument to provide support to the exchange rate) and the variability of output growth—which has tended to be higher in the case of Portugal compared to most other EU countries. Under these conditions, it could be argued that the virtual elimination of the interest rate premium under EMU could entail a more stable pattern of output growth. In this regard, however, the estimation results of Figure 8 should be interpreted with particular care, as the impact of the euro interest rate under EMU could be much stronger than the corresponding impact of the anchor currency interest rate under the ERM. Indeed, one could reasonably postulate that, with currency unification, the euro interest rate would capture the bulk of the signaling role previously embodied in the interest rate premium. That said, one could still expect on balance lower output variability on account of the elimination of the premium, on the basis of the much higher volatility of the premium component relative to the anchor currency interest rate component of Portuguese short-term rates under the ERM.[35] The likely magnitude of this effect would of course depend on the quantitative importance of the interest rate premium relative to other (that is, not related to interest rates) sources of economic fluctuations—a question that was not explored in this chapter.[36]

90.   Perhaps the most often cited potential cost of EMU relates to the loss of the exchange rate instrument to dampen the impact of asymmetric shocks. At first glance this argument may appear applicable to Portugal, given that the escudo has undergone substantial fluctuations in the past, at least in comparison to the core-ERM currencies. The empirical results of this chapter could, however, be interpreted as suggesting that the potential costs involved may be smaller than is often thought, given the way that Portuguese monetary policy has in practice operated in the past.

91.   To illustrate this point, one could consider an inflationary shock elsewhere in the euro area that prompts the European Central Bank to tighten interest rates. In such circumstances,

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[35]The impulse responses of Figure 8 suggest that a one standard deviation shock to the premium was over six times as large as a corresponding shock to the German rate.

[36]Chapter I of this paper postulates that economic fluctuations in Portugal (over a much longer horizon) can inter alia be attributed to shifts in the conduct of financial policies.

under EMU, Portugal would no longer have the option of exchange rate depreciation to offset a potentially adverse impact on economic activity. By contrast, under the ERM arrangement, it could resort to depreciation against the deutsche mark following an increase in German interest rates. It should not be overlooked, however, that under these same circumstances, the escudo has tended to appreciate against certain key non-core currencies. Indeed, the empirical results of this chapter suggest that the escudo's appreciation against non-core currencies following a tightening of German monetary policy has tended to offset (in fact, more than offset) its depreciation against core currencies. In a sense, the loss of Portugal's option to depreciate against the deutsche mark should be balanced against the loss of this same option on the part of other noncore countries.[37] Given the relative degrees with which the depreciation option had been exercised in the past by the various countries concerned, as have been estimated in this chapter, the actual cost of the loss of the exchange rate instrument in the case of Portugal may thus in fact be rather limited.

7. Concluding Remarks

92. This chapter explored some of the patterns of the monetary transmission mechanism in Portugal. The main conclusions can be summarized as follows:

• Monetary policy actions, as captured by shocks to the short-term interest rate, turn out to have strong effects on key macroeconomic variables, notably prices and economic activity. The exchange rate was found to constitute an important transmission channel regarding these effects—a reflection of the openness of the Portuguese economy.

• Additional insight into the nature of these effects can be gained by decomposing the Portuguese short-term interest rate into an anchor currency and a domestic premium component. Changes in the latter component are found to entail a much stronger impact on output and prices compared to changes in the former. This stronger impact of the premium in turn appears, at least partly, to reflect a more persistent, effective appreciation of the escudo in the wake of a positive premium shock.

• Nonetheless, a positive shock to the German short-term interest rate is also found to entail some effective appreciation. This occurs despite the depreciation of the escudo vis-à-vis the deutsche mark in the wake of the tightening of German monetary policy, as this effect has been typically (more than) offset by the escudo's appreciation against noncore ERM currencies—an important aspect of Portuguese monetary and exchange rate policy since the late 1980s

93. On the basis of the empirical results, certain, highly tentative, inferences may be drawn regarding the impact of EMU on the monetary transmission mechanism. In the first place, elimination of the interest rate premium under EMU can be expected to reduce output

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[37]Of course, this argument assumes that other noncore countries will participate in EMU at exchange rates close to their current level.

volatility. Second, the historically very different behavior of the escudo relative to other non-core currencies in response to a tightening in the anchor currency interest rate mentioned above would suggest that the loss of the exchange rate instrument in the face of asymmetric shocks may entail a smaller cost in the case of Portugal than may appear at first sight.

94.   The above considerations should not, however, mask the considerable uncertainties which remain with regard to the transmission mechanism under EMU. This in turn would suggest that caution needs to be applied with regard to conclusions on the impact of EMU on the economy's sensitivity to interest rate changes. Indeed, it is quite conceivable that closer economic integration of Portugal in the euro area, and the entrenchment of low and stable inflationary expectations, could render the economy more sensitive to changes in the euro interest rate than it has been with regard to changes in the deutsche mark interest rate under the ERM arrangement.

Figure 6. Portugal: Impulse Response: Simple VAR
(Asterisks indicate origin of shocks)
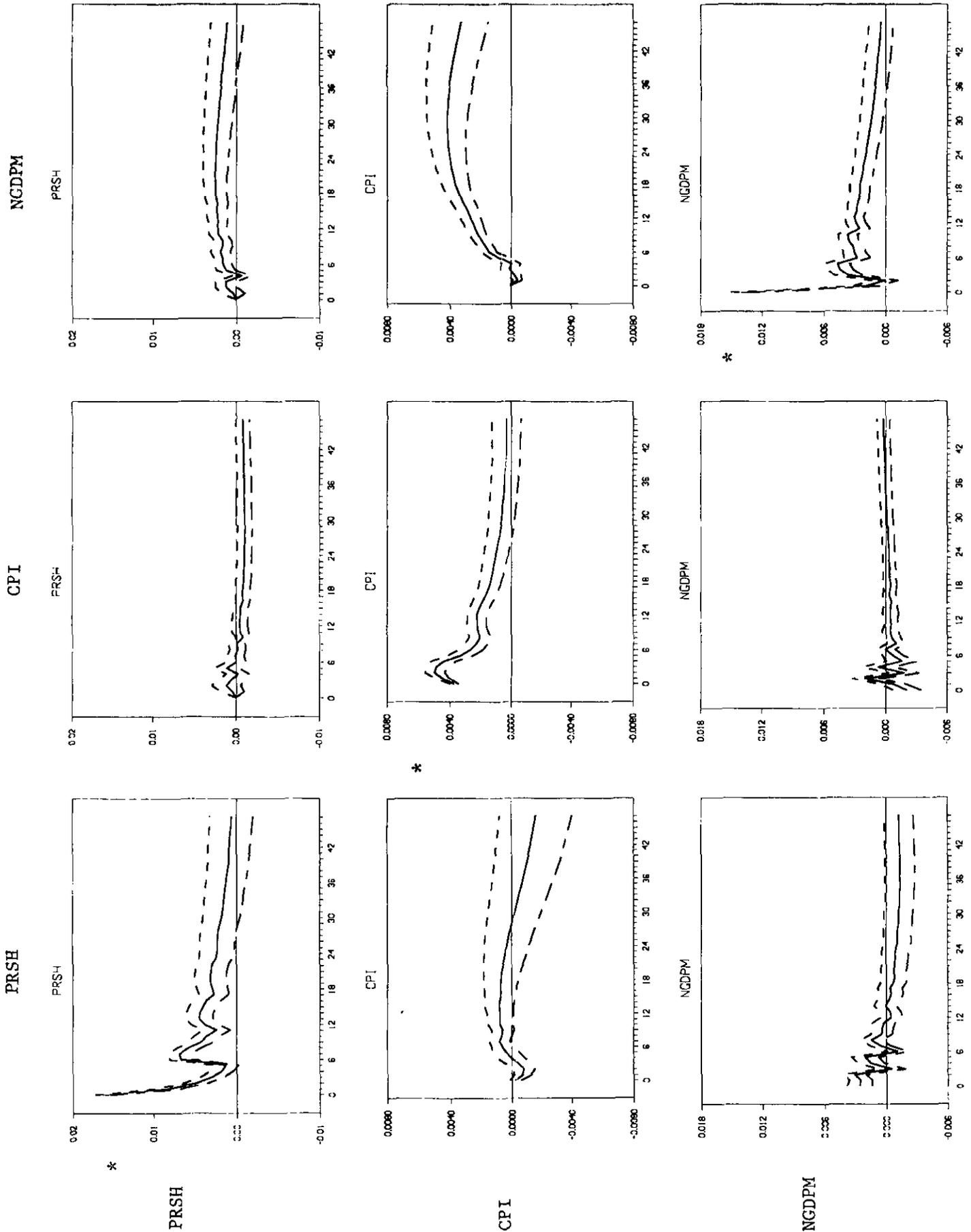
Definition and source of variables can be found in the Data Appendix.

Figure 7. Portugal: Impulse Response: Simple VAR with Real Interest Rate
(Asterisks indicate origin of shocks)
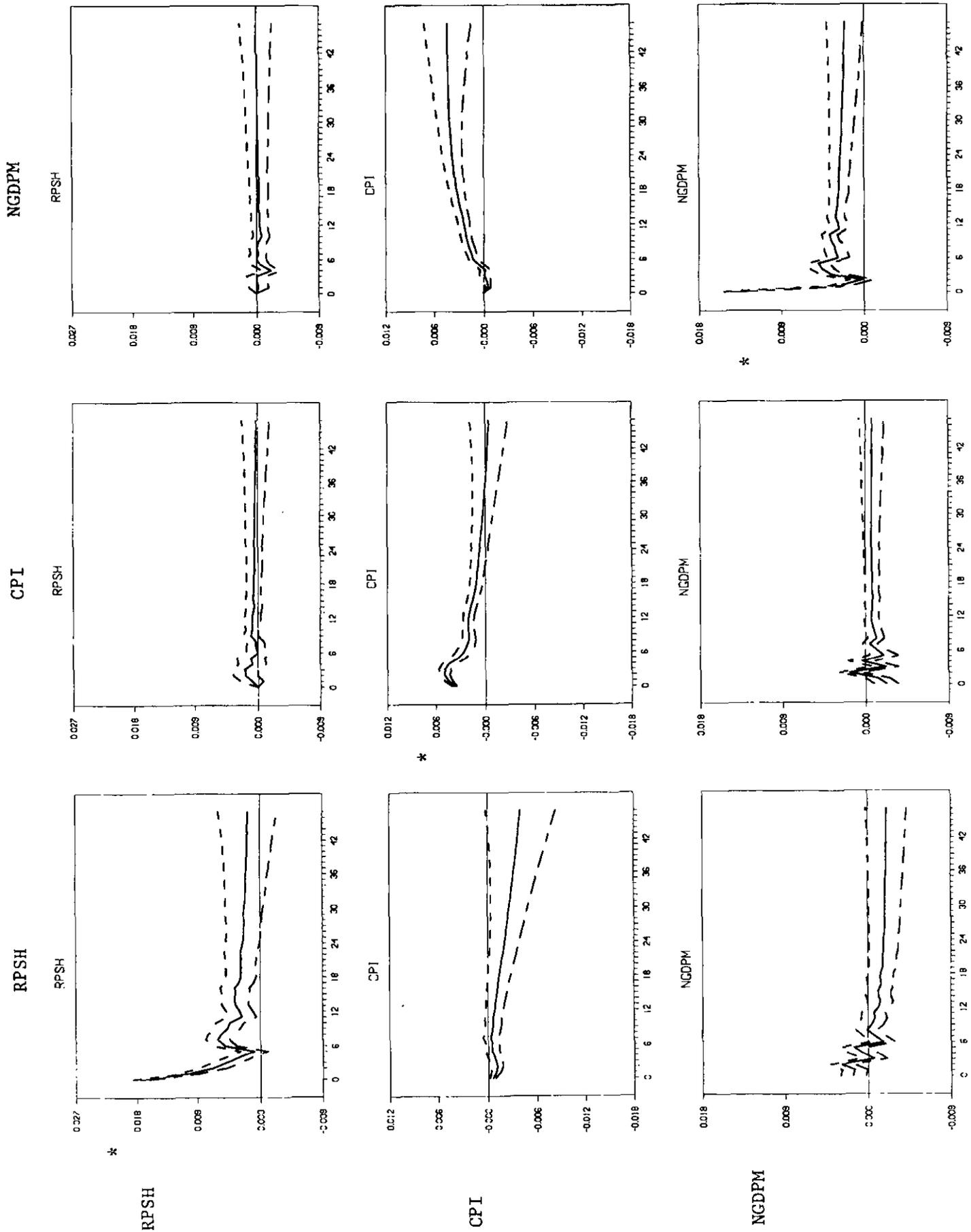
Definition and source of variables can be found in the Appendix.

Figure 8. Portugal: Impulse Response: VAR: Extended System
(Asterisks indicate origin of shocks)
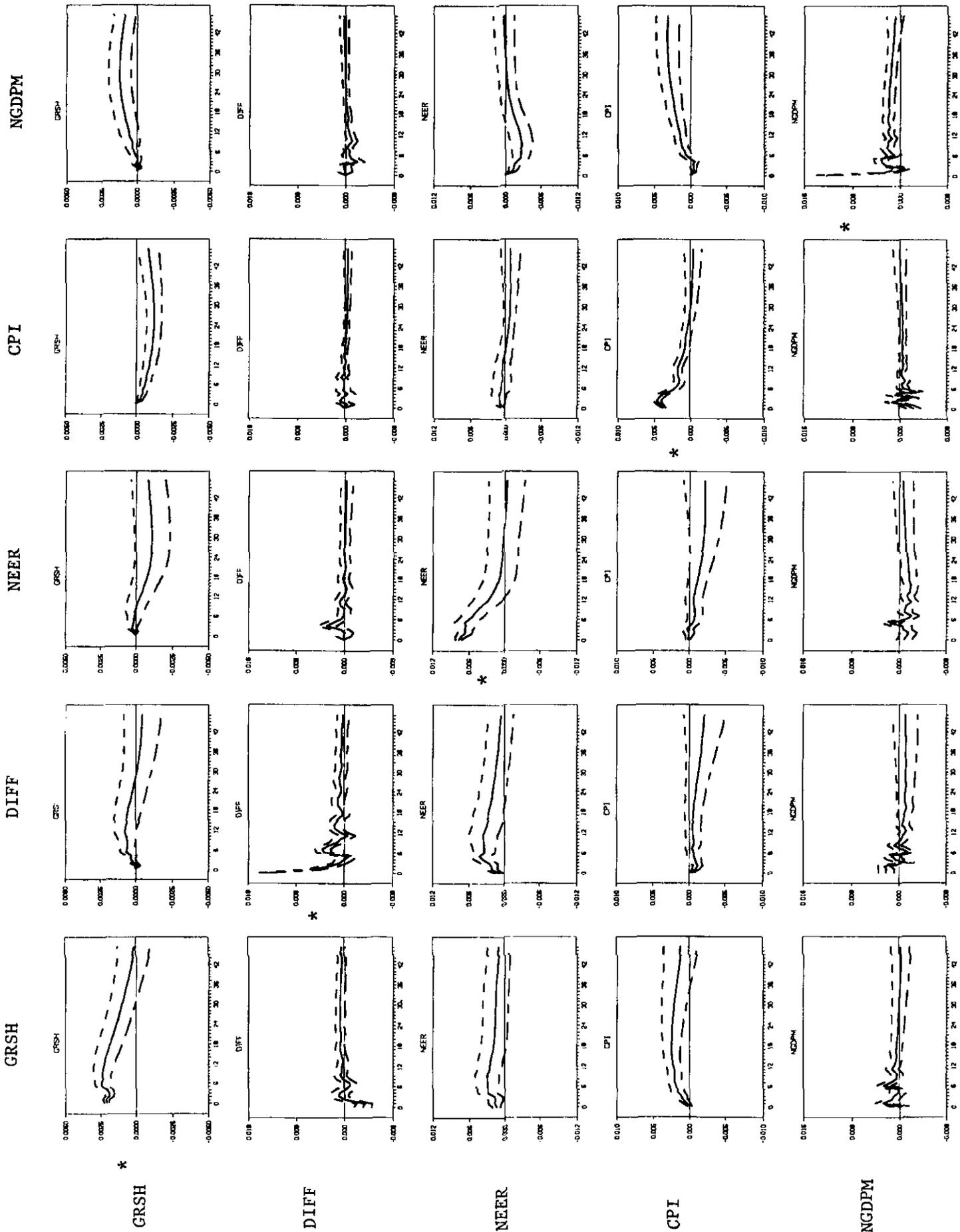
Definition and source of variables can be found in the Appendix.

Figure 9. Portugal: Impulse Response: VAR: Extended System with Escudo/Deutsche Mark Rate
(Asterisks indicate origin of shocks)
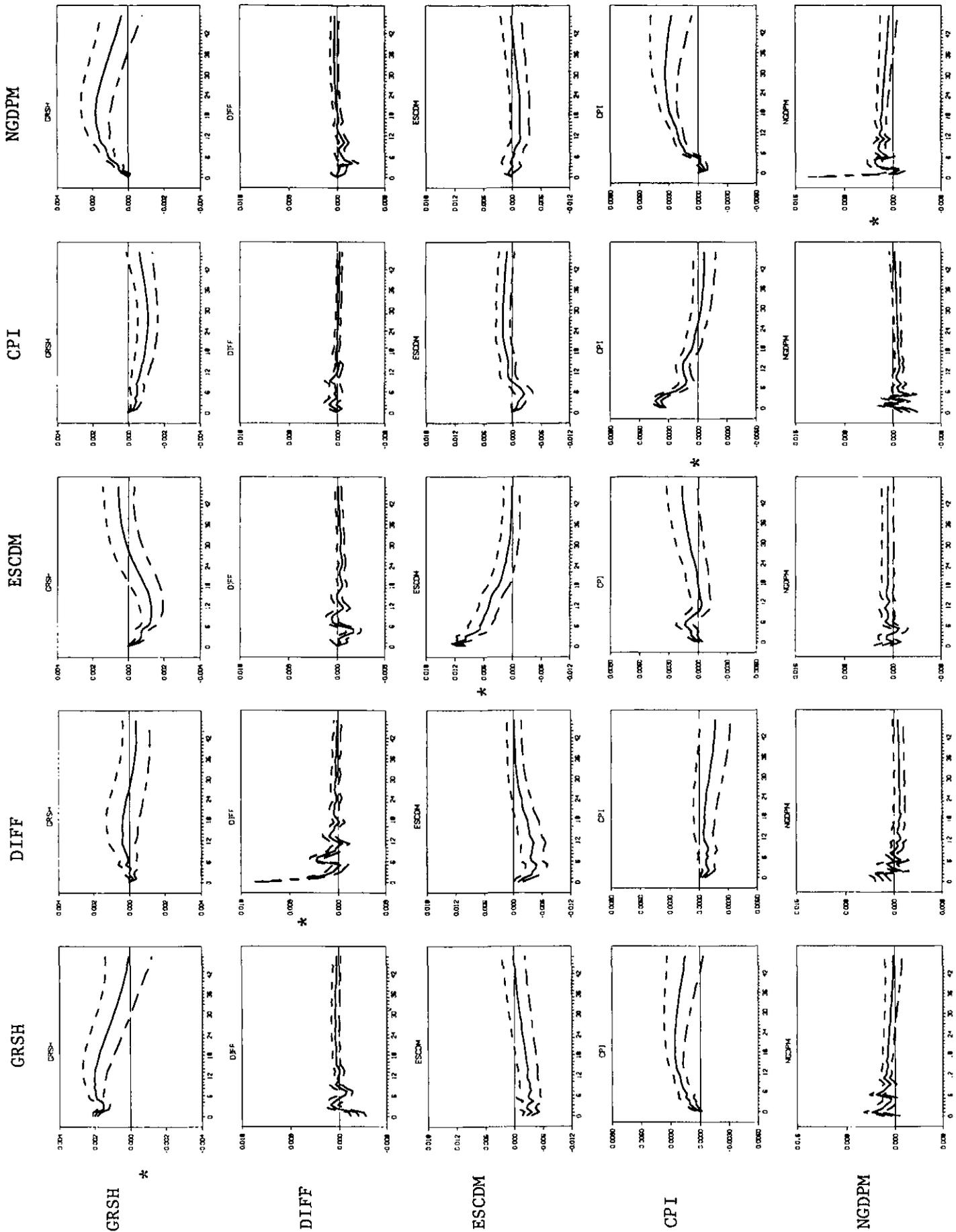
Definition and source of variables can be found in the Data Appendix.

Figure 10. Portugal: Impulse Response: VAR: Bilateral Exchange Rates
(Asterisks indicate origin of shocks)
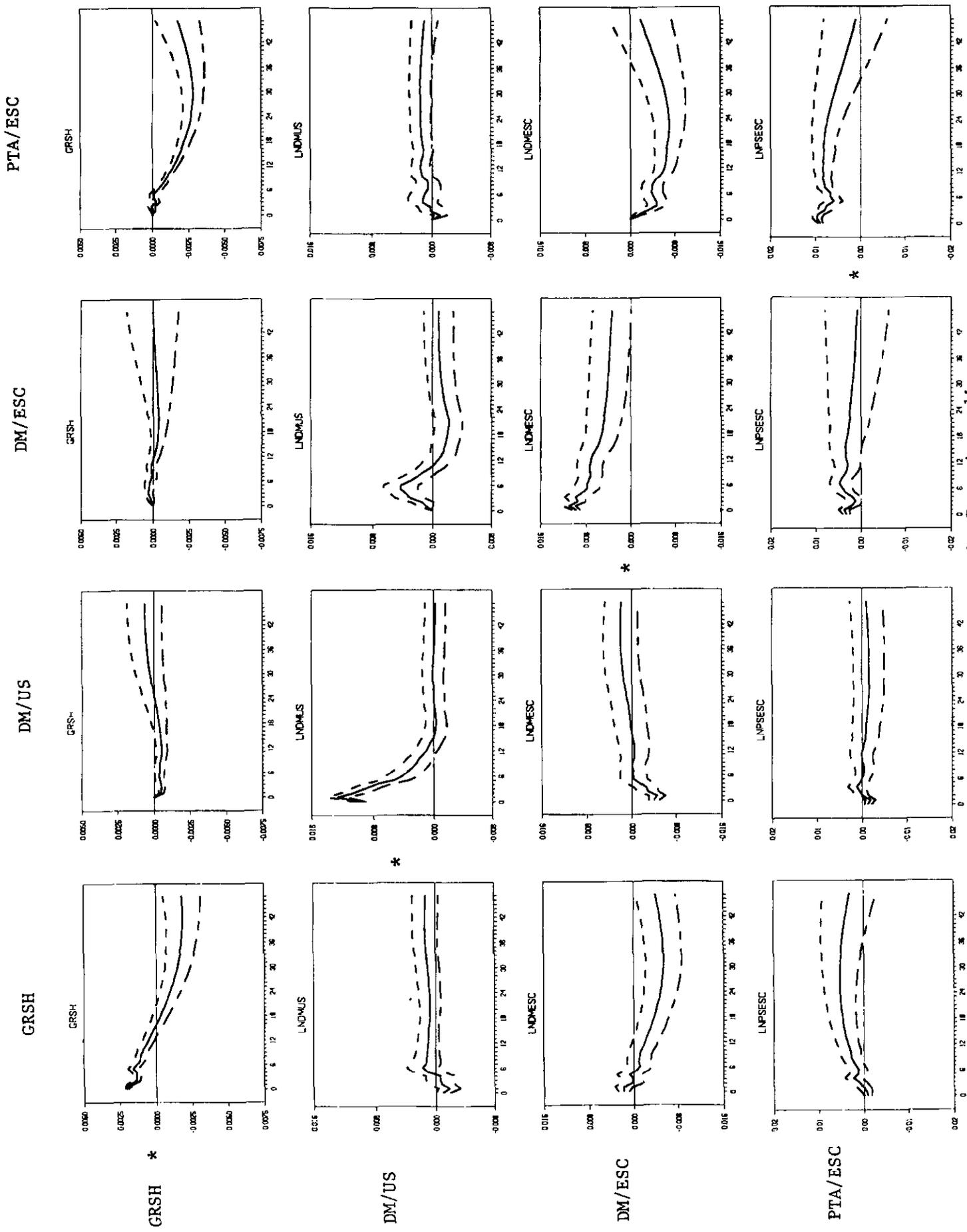
Definition and source of variables can be found in the Data Appendix.

List of variables

All variables, except interest rates, are in natural logarithms. All series were drawn from the International Financial Statistics (IFS) published by the Fund, except for data on quarterly GDP, which were drawn from the OECD's Analytical Database.

PRSH: Portuguese call-money interest rate.

GRSH: German call-money interest rate.

NEER: Nominal effective exchange rate for Portugal.

CPI: Portuguese consumer price index.

NGDPM: Portuguese GDP (at constant prices) interpolated using monthly industrial

production figures.

LNDMESC: Deutsche mark/escudo exchange rate (deutsche mark per escudo).

LNDMUS: U.S. dollar/deutsche mark exchange rate (US dollars per deutsche mark).

LNPSESC: Peseta/escudo exchange rate (pesetas per escudo).

RPSH: Real Portuguese call-money interest rate, deflated by CPI inflation.

DIFF: PRSH-GRSH.

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III. The External Sector: Some Key Forces at Work[38]

A. Introduction and Summary

95.   The real effective exchange rate of the escudo underwent a significant appreciation in the decade since Portugal's accession to EU in 1986. This appreciation, however, has not been accompanied by a fundamental deterioration in the external accounts. After hovering around balance through 1993, the current account has more recently shifted to a deficit in the order of 2–2½ percent of GDP, owing in part to a decline in private transfers and a growing deficit in the income account. These recent developments are partly due to financial innovation, and do not appear to reflect competitiveness factors; they may also be overstated by data difficulties.[39] Looking to the future, however, major changes in the external environment facing Portugal are expected to take place. In particular, the advent of EMU and EU enlargement to Central and Eastern European countries are likely to have significant effects on the Portuguese economy.

96.   The sustained real appreciation of the escudo coincided with Portugal's accession to the EU, that is, with a period of profound structural changes in the economy, accompanied by high levels of investment and rapid growth. The hypothesis that this shift in economic fundamentals justified a higher value for the escudo, i.e., that the observed appreciation was an equilibrium phenomenon, has been extensively investigated. The bulk of the research undertaken in recent years has indeed come to this conclusion, linking the appreciation of the exchange rate to economic fundamentals. The staff also came to a similar finding when it last analyzed the issue in detail.[40]

97.   Taking the conclusion of these studies as a starting point, it would appear worthwhile to revisit the issue of export profitability and to examine what developments in exports have underpinned the maintenance of external competitiveness in the face of the sustained escudo

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[38]Prepared by Joaquim Levy and Claudio Paiva.

[39]Financial innovation has created new investment opportunities for both residents and emigrants. Part of the decline in private transfers, for instance, is attributed to a more widespread use of financial instruments, with transfers to emigrants' savings to Portugal increasingly being recorded in the nonmonetary financial account of the balance of payments, instead of in the current account. Financial innovation and free movements of capital have also favored an increase in foreign asset holdings by residents. The income flows associated to these foreign assets are not, however, well captured in the financial statistics used to compile the current account.

[40]"The Real Exchange Rates and Competitiveness in Portugal," (SM/94/217, Supplement 1, 8/23/94).

appreciation. In the process, an attempt could also be made to infer from these developments Portugal's ability to adjust to the prospective changes in the external environment.

98.   The next two sections will explore these topics. Section B reviews the literature on the appreciation of the equilibrium exchange rate and attempts to measure the direct impact of the real appreciation of the exchange rate on the profitability of the exporting sector. Section C studies the main structural changes in the composition of Portugal's exports. It also attempts to evaluate the implications of the concentration of structure and geographical destination of exports (drawing inter alia on so-called "gravity" models), and gauge the relative competitive advantages of Portugal vis-à-vis Central and Eastern European candidates for admission to the EU.

99.   The investigation underscores that standard real exchange rate indices have tended to overstate the loss of competitiveness suffered by Portugal's exporting firms in 1986–92. It also finds that, while Portugal's export base has widened and moved upward on the value-added ladder, scope for further geographical and composition diversification persists. Finally, it highlights that taking up such scope is all the more important in view of the finding that the candidates for the next round of EU enlargement appear to have comparative advantages vis-à-vis Europe similar to those of Portugal.

B.   The Real Appreciation of the Escudo: an Equilibrium Phenomenon?

100.   Conventional indices of the real effective exchange rate (REER) show a significant appreciation of the escudo in the decade since EU accession in 1986. Both the ULC and the CPI-based REER indices follow a similar trend, albeit with differences in magnitude (Figure 11, top panel). They show a sharp appreciation between 1988 and the first quarter of 1992, followed by a period of instability ensuing ERM entry in April 1992, and a greater stability of the real effective exchange rate since early 1995 (at a level virtually equivalent to that prevailing from mid–1992 to early 1993). These periods broadly reflect (i) the softening and eventual abandonment of the crawling peg regime in a context of relatively high wage and price inflation vis-à-vis main trading partners through early 1992; (ii) turbulence in the exchange rate mechanism and realignments of the escudo's central parity in the context of the ERM crises of 1992–93; and (iii) more subdued conditions within the ERM since mid–1995, which have allowed a consistent pursuit of the Bank of Portugal's objective of exchange rate stability and a consolidation of the disinflation process.

The conclusions of previous studies

101.   Several studies have estimated the escudo's "fundamental exchange rate" drawing on the methodology developed by Williamson (1985), based on the principle that the equilibrium level of the exchange rate is one that promotes internal and external equilibrium

simultaneously.[41] The main conclusion of these studies has been that the improvement in the terms of trade (Figure 11, bottom panel), and the increase in both foreign investment (Freitas, 1992) and official transfers associated with EU membership (Luis, 1996) could explain a real appreciation of the escudo that would not be detrimental to the external balance. Comparing the estimated equilibrium exchange rate to the actual value of the real exchange rate, Freitas (1992) concluded that the escudo was still undervalued in 1990. A similar conclusion was reached by Manteu and Mello (1992), who estimated that a small gap remained to be closed by 1992. Finally, Luis (1996) estimated that the process of REER appreciation had led actual and equilibrium exchange rates to converge by 1994.

102. Another strand of the literature attempted to explore directly the potential correlation between economic growth and the level of the real exchange rate first suggested in Balassa (1964). Esteves (1993) used data from 1948–92 to test the hypothesis of cointegration between Portugal's real GDP vis-à-vis developed economies and the real exchange rate. Having verified that the income of Portugal relative to that of the United Kingdom and the United States was cointegrated with the exchange rate of the escudo vis-à-vis pound sterling and the U.S. dollar (that is, moved together in the long run), the study concluded that the real appreciation of the escudo observed between 1987–92 was an equilibrating process. As such, the rise in the relative price of nontradable to tradable goods (evident in Figure 12) was likely to reflect faster gains in productivity in the latter sector, owing to the increase in the capital stock and the acceleration of economic growth following EU accession. In line with Balassa (1964), the study argued that it should thus not be interpreted as a signal of a deterioration in external competitiveness.

103. Finally, Rebelo (1992) and Gaspar and Pereira (1995) provided micro foundations for these empirical results. Rebelo (1992) developed an optimization model which differentiated between traded and nontraded goods and was calibrated to reproduce characteristics of the Portuguese economy. Through simulations, the study showed that increases in the capital stock, productivity gains in the tradable sector, and the pattern of government consumption observed in Portugal could—in equilibrium—explain a persistent differential between inflation in the nontradables and the tradables sectors of the order of 1 to 3 percent a year. Gaspar and Pereira (1995) used a similar approach to gauge the effects of official transfers on the equilibrium exchange rate (through the accumulation of capital, and in contrast to an increase in foreign debt). Their simulations indicated that the long-run real exchange rate (defined as the one prevailing at steady state after the year 2005) would be 8½ percent above the level that would prevail in the absence of such transfers.

104. In sum, although a few studies have dissented from the prevailing view that the appreciation of the escudo has been largely an equilibrium phenomenon (for example, Cunha

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[41]In practical terms, these studies generally estimate the exchange rate that would equate the current account balance at positions of full employment (that is, internal balance) to the balance of "structural" or "underlying" capital flows (that is, capital flows excluding transactions driven by short-term interest rate differentials and exchange rate expectations).

and Machado, 1993),[42] the bulk of the research has attributed the (equilibrium) behavior of the exchange rate to economic fundamentals. The staff had come to a similar conclusion when it last analyzed the issue in detail (SM/94/217, Supplement 1, 8/23/94). In particular, the staff noted that, consistently with the implication of the literature reviewed above (which postulated that if the escudo's appreciation has been prevalently an equilibrium phenomenon, one would expect to find no persistent deterioration in Portugal's current account), movements in the current account did not provide any signs of a serious erosion of competitiveness (the performance of the current account over the last decade is briefly reviewed in Box 1). In the latter study the staff also pointed to some shortcomings of the standard indices used in these assessments, noting that they tended to overstate the extent of real effective appreciation.

The evidence from direct indicators of export profitability

105. An aspect of the studies discussed above is that, while the "equilibrium" appreciation of the exchange rate rests largely on the assessment that productivity in the tradable sector outpaced the increase in labor costs in the sector, only indirect indications in this sense are usually provided. In fact, standard indices aimed at capturing the effects of the nominal appreciation on the export sector systematically show unit labor costs increasing much more rapidly than export prices in the late 1980s and early 1990s (Figure 12, middle panel). Taken at face value, these indices would suggest that export profit margins halved in the period—a phenomenon that is hard to reconcile with the almost doubling of total exports over the same time span. Two reasons for this apparent dichotomy can be identified. The first is related to the fact that the industrial production index used in the computation of most ULC indicators does not incorporate new firms. The second is that, by taking manufacturing as a whole, these indices do not differentiate sufficiently between tradable and nontradable sectors, while the "Balassa effect" and similar mechanisms postulate a growing productivity differential between the two sectors (as illustrated in Rebelo, 1992) that sustains an equilibrium real appreciation.

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[42]Cunha and Machado (1993) also used cointegration analysis to determine whether the behavior of the real exchange rate observed in Portugal (and Spain) between 1960–92 shared a common trend with (and can be attributed to) the path of the respective capital stocks and population growth vis-à-vis the rest of Europe. From the results obtained for Portugal (cointegration is observed for the period 1960–88 but not for 1960–92), the authors concluded that in contrast to the peseta, the escudo appreciation against the ECU between 1989–92 could not be explained by real factors alone. Instead it was interpreted as possibly being "the result of a sluggish domestic adjustment to a very stiff anti-inflationary monetary policy," stemming from less-than-expected disinflation in face of nominal exchange rate stability.

Box 1. The Performance of the Current Account in the Last Decade

The performance of the Portuguese current account in the period 1986–97, which can be divided in three major phases (a deterioration in 1986–88, virtually balanced positions in 1989–93, and the reoccurrence of deficits after 1994), supports the view that there has been no persistent deterioration following the escudo's real appreciation through 1992.

The current account balance weakened appreciably in 1986–88, mostly as a consequence of the trade balance, whose deficit more than doubled in relation to GDP. The widening of the trade deficit was due mainly to the rapid growth of real imports, which averaged 22 percent a year in the period, more than offsetting the contemporary improvement in the terms of trade and relatively robust export growth. The rise in imports stemmed from the conjunction of trade liberalization and a strong economic expansion. Domestic absorption and import growth decelerated as from 1989. With the contribution of continued improvements in investment income, due to the cumulation of reserves, the current account strengthened and fluctuated around a balanced position between 1989–93.

Since 1994, the current account has shifted into deficit in a range of 1 to 2½ percent of GDP. This deterioration has been determined mostly by a sharper decrease in net private transfers—with also a negative contribution of services. Private remittances have been declining since the early 1980s, reflecting lower migration from Portugal. The more acute decrease of such inflows after 1993 may be linked to the weakness of economic activity in emigrant host countries, and to financial innovations that have diverted part of repatriated savings to financial instruments recorded in the nonmonetary financial account. The weakness of economic activity in Europe also has dampened tourism receipts, while the increase in the income of Portuguese households has been associated with greater expenditures on tourism and other services (preliminary data for 1997, however, suggest a strong pick up in receipts). The trade balance has remained broadly stable.

Movements in the current account can be decomposed into changes attributed to fluctuations in the exchange rate (a "price" effect) and changes reflecting the economic cycle (an "income" effect). The adjustment to "income" effects would reflect trade flows in the absence of output gaps in Portugal or its trade partners, based on Portugal's estimated import elasticity to the domestic output gap (2.2) and the elasticity of exports with respect to income of main trading partners (3.5). Such cyclical adjustment, aimed at isolating the effect of the exchange rate on the current account (Figure 13), shows that the performance of 1989–93, when the current account hovered around balance, can be viewed as distinctly more positive in light of the relative output gaps of Portugal and its partners at the time (this performance was not fortuitous, rather reflecting a substantial increase in taxes and the adoption of credit ceilings, including for the purchase of durable goods, aimed at cooling down the economy). By 1993, the importance of the cyclical adjustment factor declined, but as the recovery in Portugal has out paced that in most partner countries, the adjusted current account deficit has again become smaller than the actual deficit.

In summary, most of the deterioration of Portugal's current account in 1986–88 and 1994–97 can be explained by the removal of obstacles to imports associated with EU accession at a time of strong aggregate demand growth in the first instance, and the decline in net transfers and net service flows in the second episode. The overall stability of the trade balance also suggests that the significant appreciation of the escudo over the past decade has not had an adverse impact on Portugal's competitiveness.

106.   Indices based on a constant sample of firms underestimate the economy's competitiveness to the extent that new firms are in general more productive, being more capital intensive and technologically advanced. While a halving of export profit margins (as shown in Figure 12) is consistent with the findings of Farinha and Mata (1996), who accompany existing firms for the period 1986–94,[43] the magnitude of the phenomenon is considerably smaller when indicators that better capture the actual evolution of the economy are used. For instance, taking value added in the manufacturing sector (from the Bank of Portugal's recently released "long series" of the national accounts) as a proxy for activity in the export sector, would point to a much lower increase in unit labor costs over the period, suggesting inter alia that the actual real appreciation of the escudo in 1986–92 was closer to 20 percent, instead of the 40 percent yielded by standard industrial production based indices.[44]

107.   A further indication that the export sector was able to remain competitive in the face of the appreciation of the currency in the late 1980s can be found in Cabral (1996). This study explores the information in the balance sheets of some 2,000 firms with an exporting activity in 1986–92 (the number of firms increases from 1,471 to 2,139 in the period). It finds that, while exports from domestic firms were sensitive to changes in the exchange rate, those from foreign firms—whose participation in total exports increased by 25 percent in 1986–91—were not. The data indicates that unit labor costs in export firms grew in line with export prices (Figure 12, bottom panel). In fact, such data indicate that the profitability of export firms increased in the late 1980s, falling only in 1991–92 (by some 10 percent from their 1986 level).[45] This body of micro data also points to a sharp increase in the capital intensity of

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[43]Farinha and Mata (1996) indicate that the ratio of operational income to sales for exporting firms declined from around 8 percent in 1986–89 to some 4 percent in 1991–93. They noted that using different variables (such as gross or net profits) did not alter the thrust of the results. Curiously, when looking at sectors, instead of at individual firms, Farinha and Mata found that profitability margins in "more exported-geared" sectors have not declined in the period, further suggesting that, when the sample comprises new firms, profitability developments appear decidedly more favorable.

[44]This conclusion does not take into account similar adjustments in partner-country ULCs, under the assumption that the need for such an adjustment was more pronounced in Portugal in view of the sharp increase in foreign investment and the creation of new firms in the period under consideration.

[45]The increase in profitability in the late 1980s was driven by the higher profitability of foreign firms, while the decline in 1991–92 was provoked by a 15 percent fall in the profitability of domestic firms (which can probably be traced to the textile and clothing sectors, as suggested by the extensive restructuring undergone by these sectors since 1993). These figures were computed using data from Cabral (1996) and the assumption that the sample is representative of the export sector (i.e., that the volume of exports generated by firms in the sample was

exporting firms (particularly foreign-owned firms, whose number increased by 20 percent in the period), buttressing the hypothesis that capital accumulation was a major factor sustaining the equilibrium appreciation of the exchange rate.

108. In sum, direct indicators of competitiveness (e.g., export profitability), computed from data that attempt to reflect the substantial changes that occurred in the export sector in the period and more narrowly focused on exporting firms, would strengthen the conclusion reached by most of the literature regarding an equilibrium appreciation of the real exchange rate since EU accession.

C. Factors Underpinning the Equilibrium Appreciation and Future Prospects

109. The maintenance of external profitability in the face of the real appreciation of the escudo was underpinned by a major transformation of the external sector. Associated with the increase in capital intensity noted above, there was an important shift in the structure of exports toward higher value-added goods. This process is not yet complete, and may even accelerate as the economy meets new demands and becomes increasingly integrated in the global economy.[46] In the following paragraphs this structural change, as well as some directions in which further changes may take place, are highlighted.

The changing structure of exports

110. The positive export performance since EU accession can be traced to a movement of exports toward higher value-added products. In the immediate aftermath of accession, exports of light manufacturing—notably clothing and footwear—increased by more than 50 percent (Figure 14, top panel), sustained by the effects of greater access to European markets and supplanting more traditional exports, such as agricultural products. These effects were countered, however, by the continued appreciation of the escudo in the later part of the 1980s. The steady rise in relative unit labor costs weighed increasingly on the profitability of such labor-intensive industries as clothing and footwear.[47] Overall exports thus leveled off in the early 1990s, and fell marginally in 1993, in the face of the weakening of economic activity in the rest of Europe. This pause was, however, short-lived as new productive capacity came on stream following a peak in direct foreign investment in the early 1990s. In this more recent

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[45](...continued)
proportional to Portugal's total exports in the period).

[46]A diversified economy is also better prepared to participate in a monetary union (Kenen, 1969; and Krugman, 1993).

[47]This phenomenon is consistent with the findings in Cabral (1996) pointing to a greater sensitivity of changes in the exchange rate on the part of less capital intensive (domestic) firms than on that of increasingly more capital intensive (foreign) firms.

phase, export growth has been driven particularly by sales of machinery and transportation equipment, that doubled between 1994 and 1996 (Figure 14).

111.   The structural change in exports since the mid-1980s is well-illustrated by the near doubling of the share of machinery and transportation equipment in total export values in the decade to 1996 (Figure 15).[48] At the same time, important categories of traditional exports—wood, cork, and paper pulp (all classified among "crude materials"), agricultural products, and textiles[49]—saw their relative importance decline appreciably.

112.   This structural shift in exports toward higher valued-added products, which has undoubtedly strengthened the country's export base, has not however been fully accompanied by a diversification of geographical destination, which remains highly concentrated. In 1991, exports to EU12 countries accounted for three-quarters of the total, with exports to Germany alone accounting for about one-fifth. Moreover, the reliance on traditional markets has increased since then, with EU12 countries absorbing 80 percent of Portuguese exports in 1996. Such a concentration on relatively slow-growing European markets has led to a paradoxical situation: while market shares measured as inroads in traditional markets have increased by close to 15 percent since 1990, the share of Portuguese exports in world trade has actually declined slightly over the same period (Figure 14, bottom panel).

Geographic diversification: indications from a gravity model

113.   The possible over-reliance on traditional markets can also be illustrated by the comparison of actual trade patterns with those predicted by a "gravity" model. Gravity models postulate that bilateral trade between two countries can be explained by each country's size and income per capita, the distance between them, and other factors such as membership to trade blocs (see Appendix for a brief discussion of the model and its application to Portugal). Although in some cases the failure of actual trade flows to attain the levels predicted by the model is attributed to the existence of trade restrictions, the model can also shed light on potential markets that, for one reason or another, have not been fully tapped. In this context, gravity models, while originally used for analyzing aggregate trade flows (Helpman and Krugman, 1985; Baldwin, 1994), have proved useful in estimating potential levels of sectoral trade, for which differences in transportation costs and income elasticities may be significant (e.g.,Vittas and Mauro, 1997).

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[48]The recent performance of transportation material exports has of course been driven largely by sales of AutoEuropa, a large car manufacturer partially owned by Volkswagen which started operating in 1995. Nonetheless, this sector had already shown considerable dynamism in earlier years, sustaining the diversification of the export base into higher value-added products.

[49]The share of textiles (which are classified among basic manufactures) in total exports almost halved, to around 7 percent.

114.	The comparison between "potential" (that is, predicted by a gravity model) and actual exports to a number of countries (Figure 16) highlights two prominent features of Portugal's external trade performance. First, considering the country's income level (with its attendant labor costs) and geographical location, the potential for substantial export growth in sectors such as textiles,[50] clothing, and footwear appears very limited or even negative. Second, in sectors with greater value added and significant scope for growth, some markets appear close to saturation.

115.	Although these results should be interpreted with caution, as the model does not fully capture some specificities of trade flows,[51] they do indicate a need for greater geographical diversification, which is indeed an objective of the government's trade policy. Interestingly, the model suggests that while large markets such as the United States generally offer ample opportunities for significant increases in trade, small economies also hold potentially valuable trade opportunities in certain sectors.[52]

Looking ahead and eastward: challenges and opportunities

116.	The potential drawbacks of the geographical concentration of exports to a few EU countries acquires greater and more immediate relevance in view of the prospective enlargement of the EU to Central and Eastern European countries. Among the candidates for early accession to the EU are the Czech Republic, Hungary, Poland, and the Slovak Republic, which (with the exception of the Slovak Republic) are more populous than Portugal and closer to Portugal's most important export market. In addition, from a sectoral standpoint,

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[50]Corado (1995) and Corado, Benacek, and Caban (1995) have studied trade patterns between Portugal and the rest of the EU, most notably with respect to textiles and clothing. They highlight quality issues in intra-industry trade, noting that Portugal tends to import high quality intermediate and final goods from the rest of the EU, while exporting lower quality goods. This pattern is not unique to Portugal, however, being shared by most Central and Eastern European countries.

[51]While the model does not fully capture specialization in market segments, such as luxury or design clothing, at an appropriate level of disaggregation, it probably captures intra-industry trade and specificities of individual sectors (e.g., that trade in the transportation sector is dominated by large transnational companies). On the other hand, when interpreting results, the "dynamic" aspect of potential trade should also be kept in mind. More specifically, as more disaggregate data are used, any step increase in production of a specific item may lead to export levels that are temporarily above "potential." For instance, the "over" exporting of transportation equipment to Germany associated with AutoEuropa, while in part linked to the ownership of the plant, is likely to wane as the Portuguese economy grows.

[52]The large gap between actual and "potential" exports of iron and steel, for its part, is traditionally attributed to trade restrictions stemming from quotas and other protectionist barriers.

these countries as a group (hereafter called CEEC–4) appear to have similar comparative strengths to those of Portugal.[53]

117. Indicators of revealed comparative advantages (RCA)[54] between Portugal and seven EU countries[55] (hereafter called EU–7) show that Portugal has enjoyed a comparative advantage vis-à-vis these countries in the sectors of crude materials and miscellaneous manufactured products, such as clothing and footwear (Figure 17). The main trends captured by the RCAs have been the deterioration in Portugal's position in chemicals and miscellaneous manufactured products, and the improvement in machinery and transport equipment.[56]

118. RCAs for the CEEC–4 vis-à-vis those EU-7 countries (Figure 17, bottom panel) show that the CEEC–4 have enjoyed comparative advantages in the areas of food products, crude materials, mineral fuels (e.g., coal), miscellaneous manufactured goods, and, to a lesser degree, basic manufactures (which include mainly textiles, paper, cement, and steel). The main

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[53]In 1996, the combined GDP of the CEEC–4 was approximately US$250 billion, with an average GDP per capita of US$4,000. Exports have grown steadily, and the share of CEEC–4 exports in EU–7 total imports tripled between 1986 and 1995, although remaining relatively low (around 2 percent). Exports to the EU–7, which comprise about half of total exports, are composed mainly by manufactured goods (basic and light manufactured goods accounting for 50 percent of total exports, machinery for 25 percent), with foodstuff and chemicals accounting for 7-8 percent to total exports.

[54]The indicator of revealed comparative advantage is given by $RCA_{ipc} = (X_{ipc}-M_{ipc})/(X_{ipc}+M_{ipc})$, where X_{ipc} (M_{ipc}) stands for the Portuguese exports (imports) of product i to (from) the CEEC–4 in a given period. Note that RCA indicators show actual trade patterns which can be influenced by restrictive trade policies, temporary factors, and, in the case of the CEEC–4, distortions still remaining from the era of central planning. These indicators therefore do not necessarily reflect true longer-term comparative advantages, but can be used as an indication of which export sectors bear the greatest potential for expansion.

[55]Belgium, France, Germany, Italy, Luxembourg, the Netherlands, Spain, and the United Kingdom.

[56]Disaggregated data show that the deterioration in the RCA for basic manufactures has been driven primarily by the losses in the textiles and wood sectors, which could not be compensated by the improvements in all other major categories. The negative performance in miscellaneous manufactured products has been driven by the RCA decline in clothing and footwear. The improvement in the category machinery and transportation equipment can be attributed solely to the performance in transport equipment, indicating that the observed increase in the export of machinery was offset by imports under the same broad category (not surprisingly, in view of the extensive construction of new plants and retooling of old ones in recent years).

characteristics of the evolution of the CEEC–4 RCAs have been the significant erosion of the advantage held in food products, mineral fuels, and manufactured goods, and the improvement in the area of machinery and transport equipment (see Vittas and Mauro, 1997 for an account of possible causes for this erosion).

119. The similarities between the revealed comparative advantages of Portugal and the CEEC–4 vis-à-vis EU–7 countries (with the notable exception of food and fuels) thus constitute a strong case for pursuing a greater geographical diversification of Portugal's exports. This is especially the case given that proximity to Germany would appear to favor CEEC–4 exports once they have full access to the European single market. As noted by Luz (1997), this diversification effort should, however, embrace the CEEC–4 themselves, in relation to whom Portugal's revealed comparative advantages in numerous sectors have increased substantially, following market liberalization in those countries. Figure 18 indicates that in the case of basic manufactures Portugal's disadvantage was halved, while it was reversed in the case of machinery and transportation goods; Portugal has also retained a comparative advantage in clothing. Also based on a gravity model, Luz concludes that, if taken up by Portugal, the potential for exporting to the more than 60 million consumers in these fast growing CEEC–4 economies could in good measure offset the competitive loss of Portugal vis-à-vis German markets entailed by CEEC–4 accession to the EU.

D. Conclusions

120. Portugal's external competitiveness has been preserved despite the real appreciation of the exchange rate in the late 1980s and early 1990s. This adjustment has been underpinned by a change in the structure of exports toward higher value-added products, accompanied by an increase in the capital intensity of the export sector and an attendant increase in labor productivity in the sector. Reflecting the impact of EU accession, the share of exports to other EU countries has become dominant. Looking forward, it would appear that the ongoing diversification in the structure of exports should be accompanied by greater diversification of geographical destination. In particular, "potential" export flows to the United States predicted by a gravity model are well above their actual levels. That model also suggests that numerous small economies offer the potential for absorbing a greater share of Portugal's exports. Finally, the study highlights that taking up such scope is all the more important in view of the finding that the candidates for the next round of EU enlargement appear to have comparative advantages vis-à-vis Europe similar to those of Portugal.

Figure 11. Portugal: Real Effective Exchange Rate and Terms of Trade
(1992=100)

REAL EFFECTIVE EXCHANGE RATE

--CPI-based REER
—ULC-based REER

1/

2/

3/

3/

3/

ptred27a

1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997

TERMS OF TRADE

Trend

ptred27b

1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996
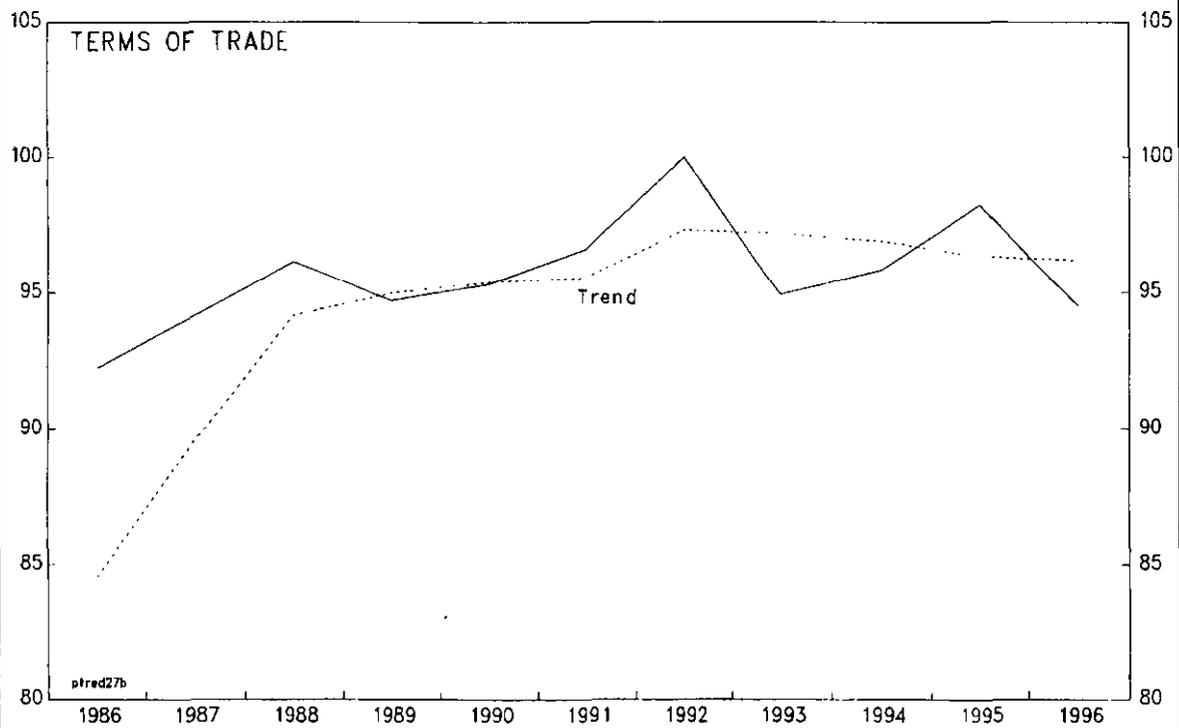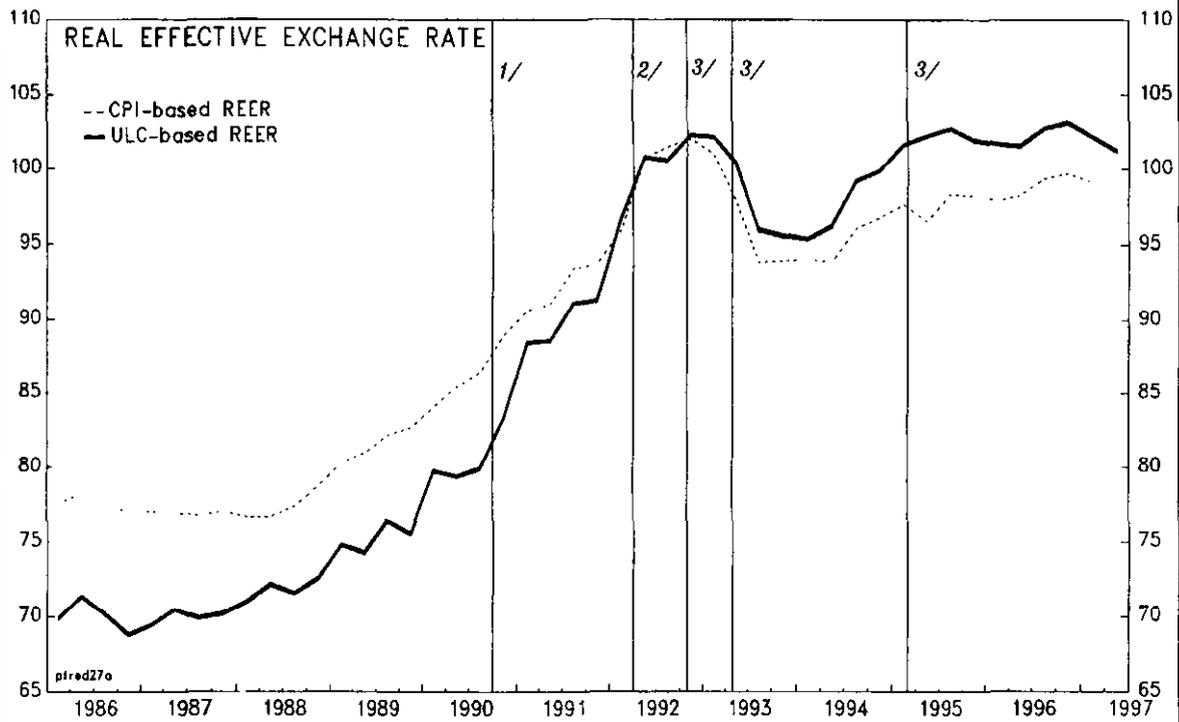
Sources: IMF, International Financial Statistics; Information Notice System; World Economic Outlook;
and staff calculations.

1/ Shift to nominal exchange rate peg.
2/ ERM entry.
3/ Central rate realignments of November 1992, May 1993, and March 1995.

Figure 12. Portugal: Export Profitability
(1986=100)

RATIO OF NON-TRADABLE TO TRADABLE PRICES

EXPORT PROFITABILITY
(Based on industrial production index)
— Export price index
-- ULC Index
— Export prices/ULC

EXPORT PROFITABILITY
(Based on balance sheets of exporting firms)
— Capital intensity
- ULC Index
— Export price/ULC
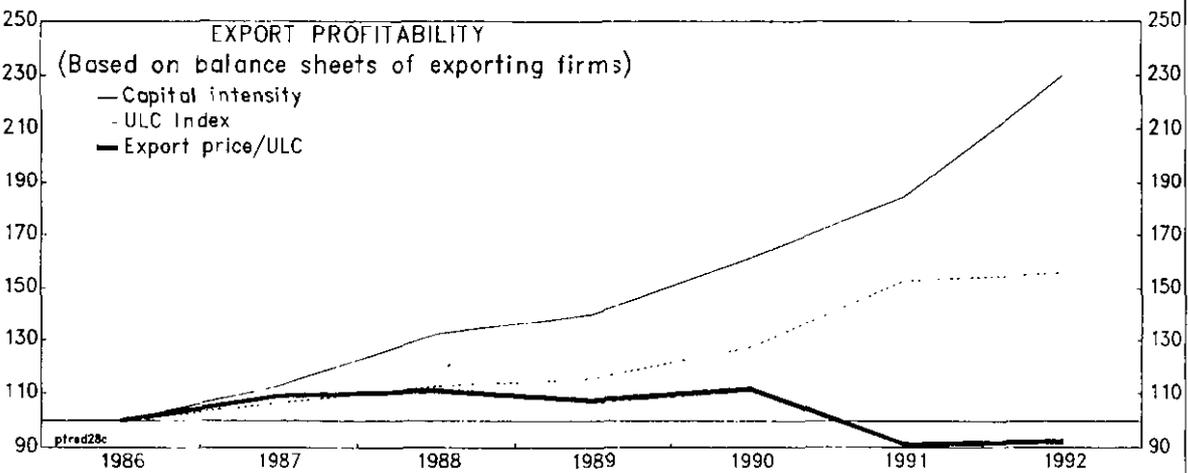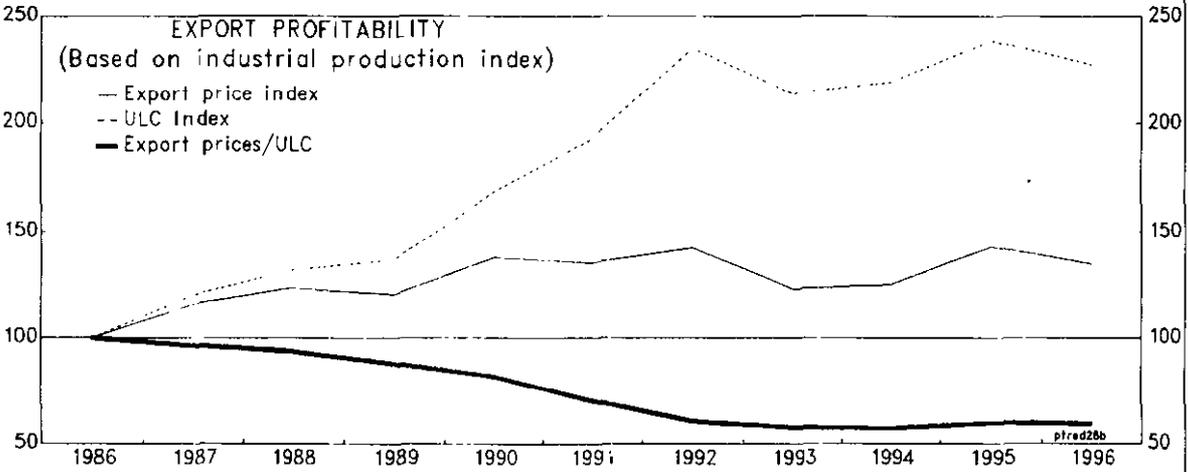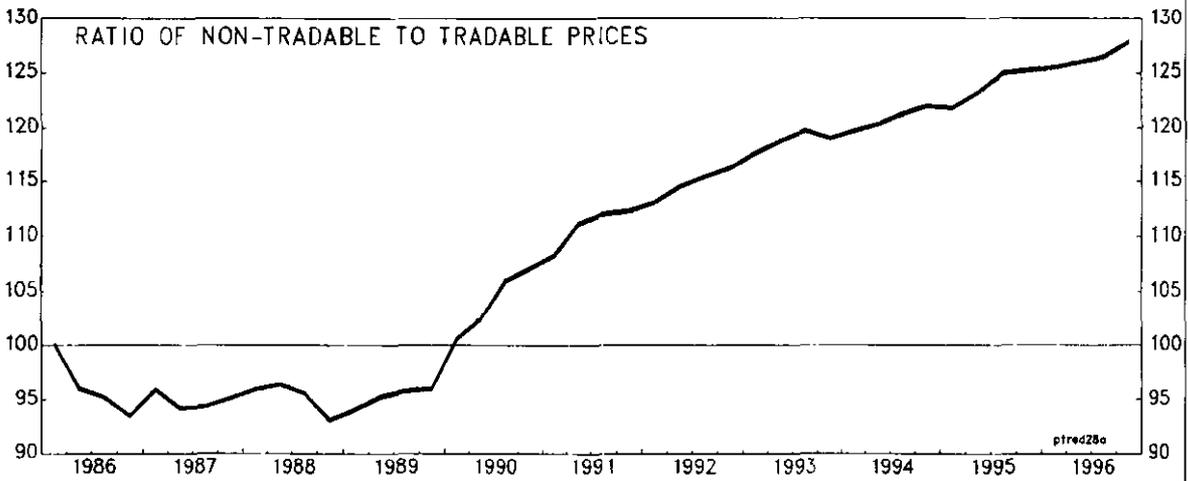
Sources: Portugal authorities; and staff calculations.

Figure 13. Portugal: Current Account 1/
(In percent of GDP)

CURRENT ACCOUNT STRUCTURE

— Current account
— Trade balance
-- Transfers
··· Services
-- Income

CYCLICALLY ADJUSTED CURRENT ACCOUNT

Adjusted

Actual
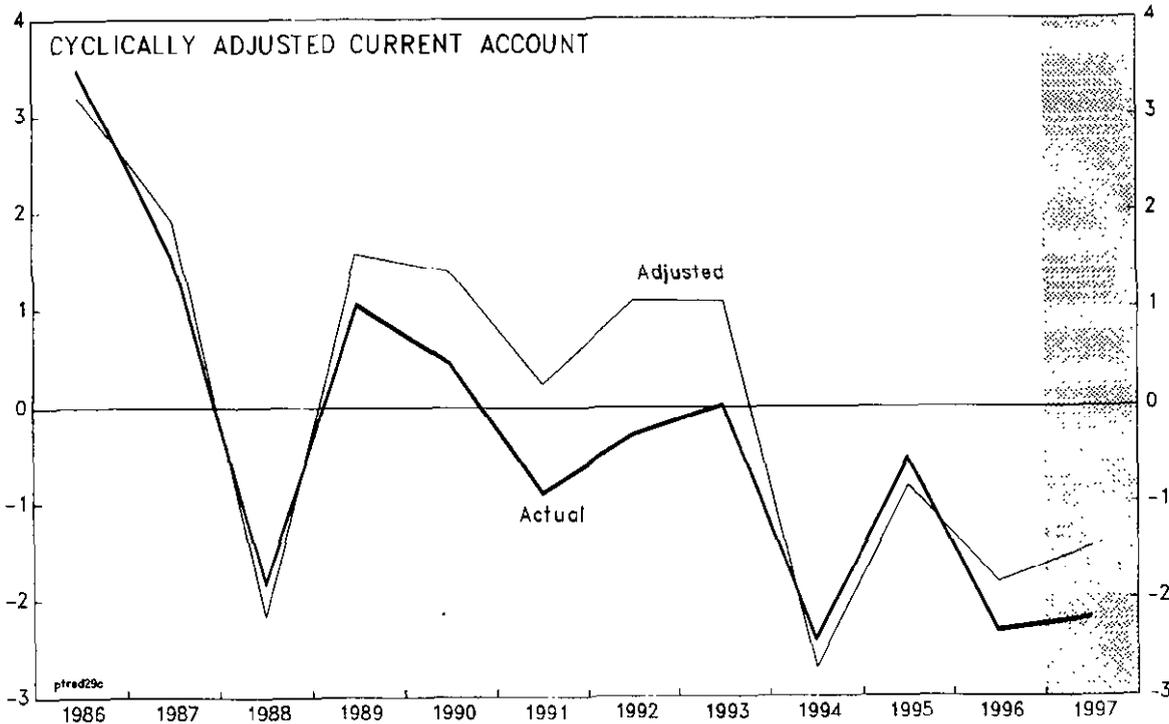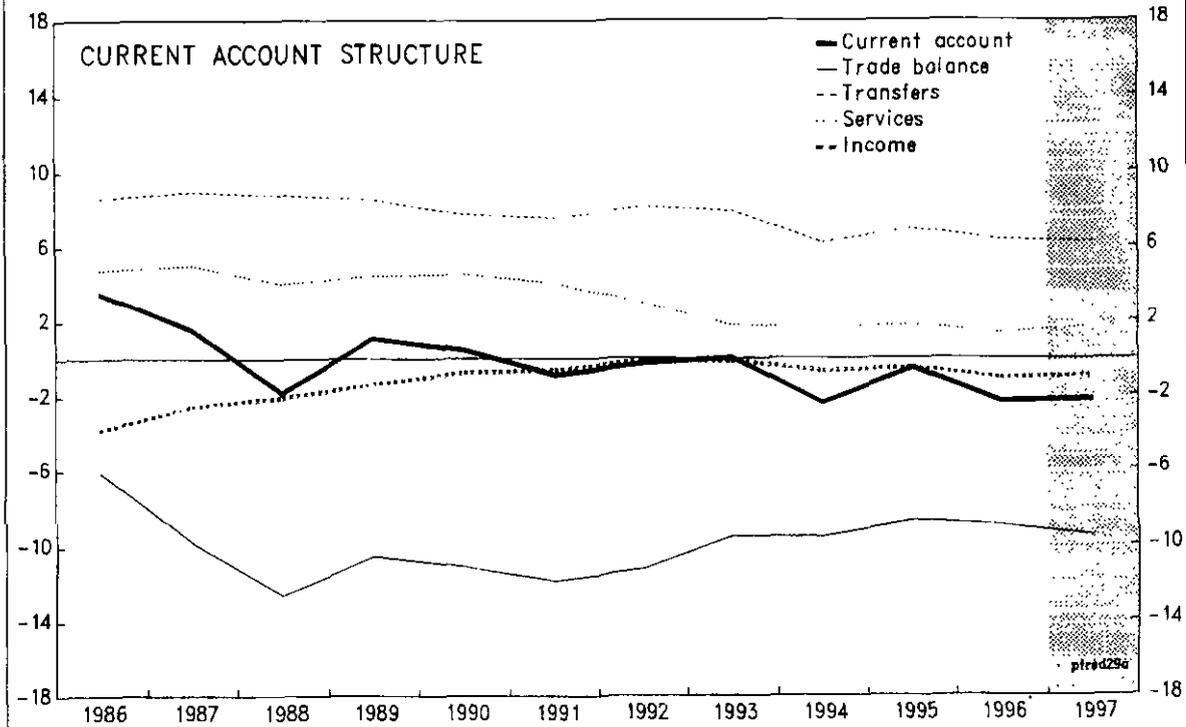
Sources: Bank of Portugal; IMF, World Economic Outlook; and staff estimates.

1/ Shaded area indicates staff projections.

Figure 14. Portugal: Export Growth
(Volume, 1986=100)

EXPORT GROWTH BY SECTOR
— Total
— Foodstuff
-- Wood & Paper
·· Leather & textiles
-- Clothing & footwear
← Machinery & transport
  equipment

EXPORTS OF MACHINERY AND TRANSPORT EQUIPMENT
— Total exports
— Transport equipment
-- Machinery

EXPORT MARKET SHARE
· Trading partners
— World
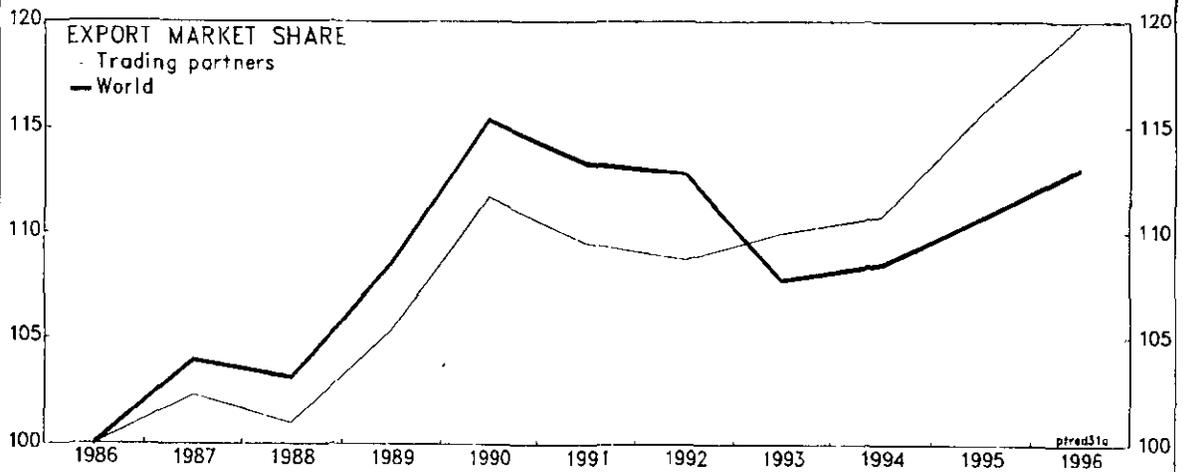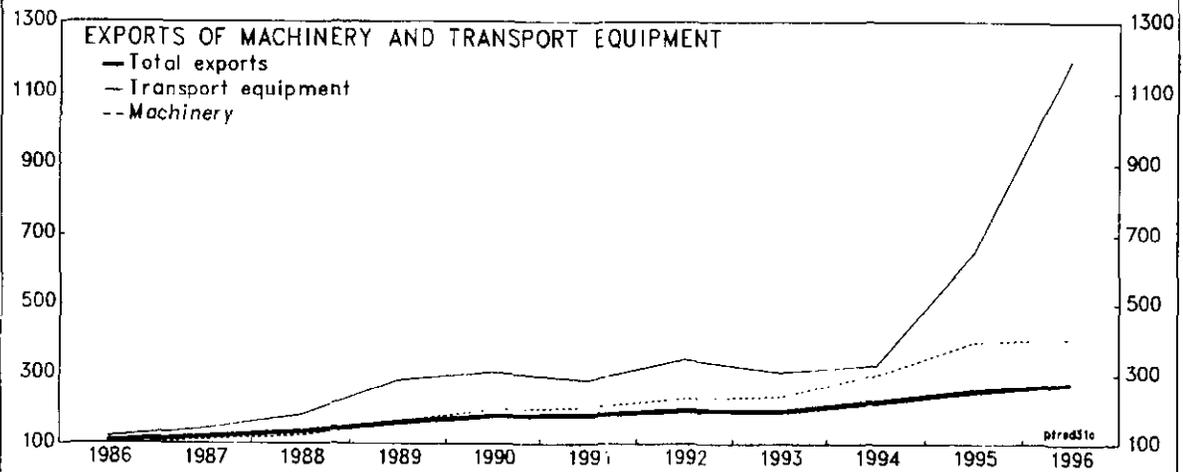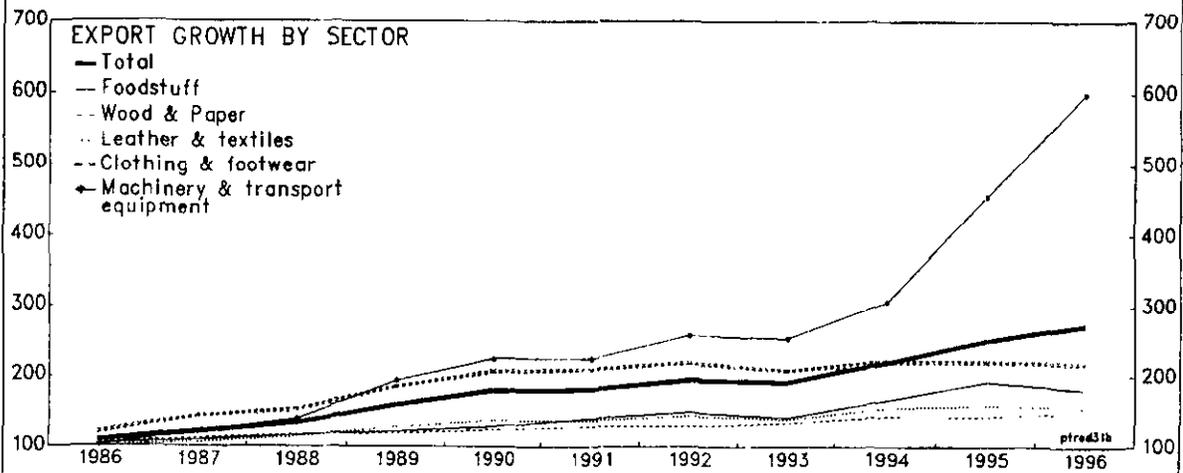
Sources: Portugal authorities; IMF, World Economic Outlook; and staff calculations.

Figure 15. Portugal: Export Composition by Sector
(In percent of total exports)

□ 86-88
■ 94-96

Food products · Beverages and tobacco · Crude materials · Fuels · Fats and oils · Chemicals · Basic manufactures · Machinery & transport equipment · Miscellaneous manufactures

ptred26.xls
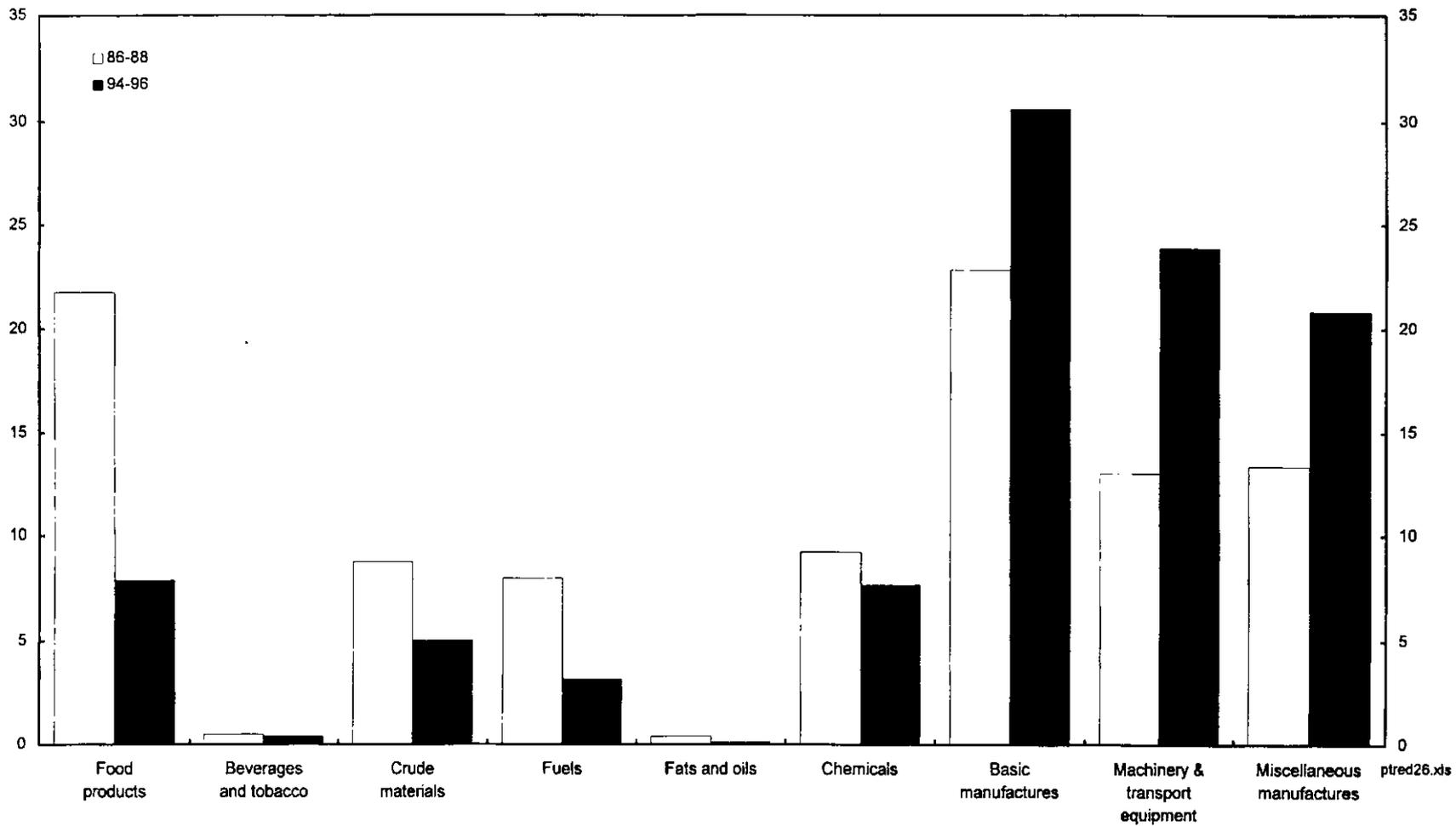
Sources: IMF, Trade Analysis and Reporting System.

Figure 16. Portugal: Potential Exports 1/
(In million of US dollars)
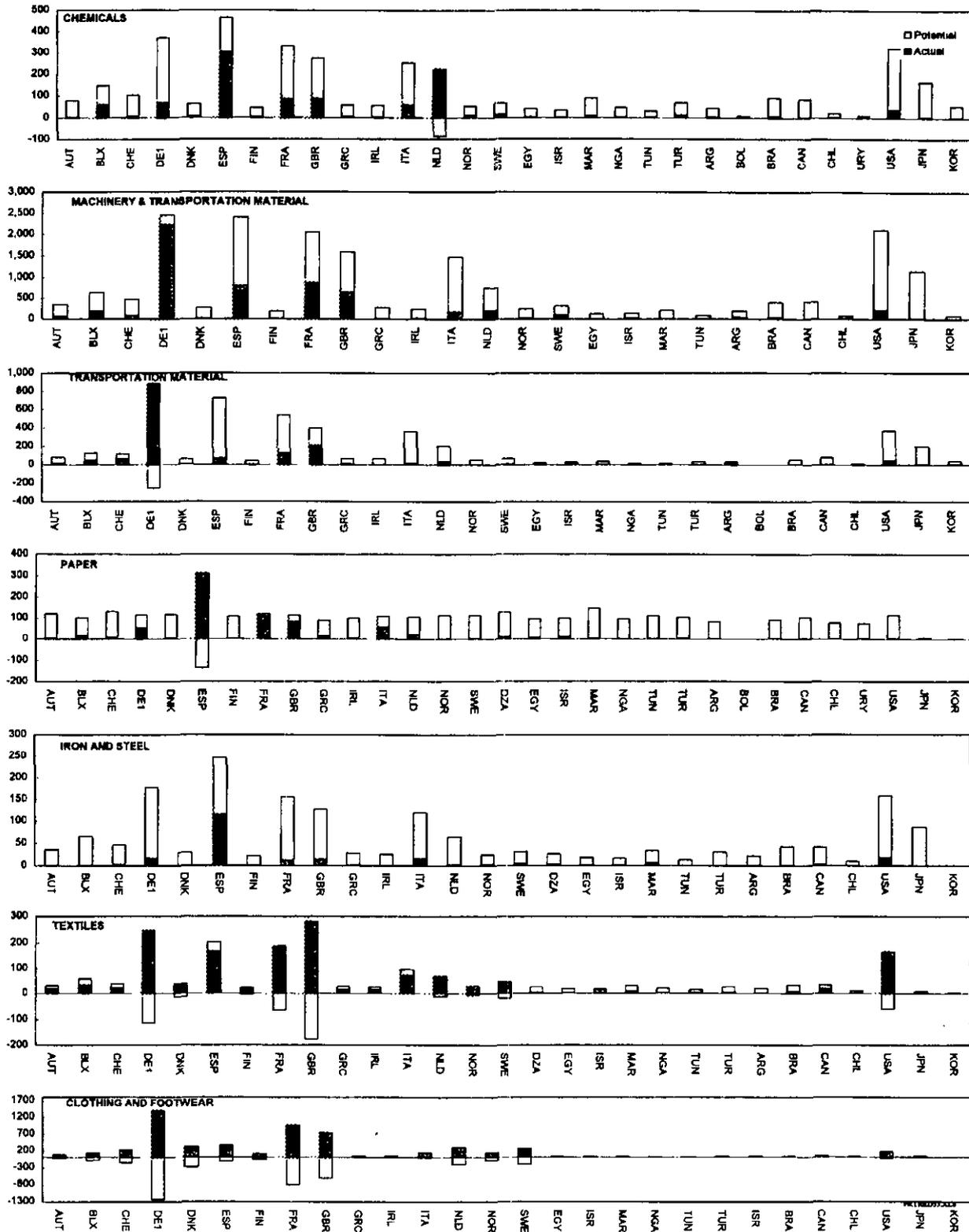
1/ Gray areas indicate the amount of exports of Portugal to respective countries in 1995. White areas indicate the slack vis-a-vis potential (i.e., predicted by the gravity model) export flow A negative white area indicates that actual trade exceeds that predicted as "potential".

Figure 17. Portugal: Revealed Comparative Advantages
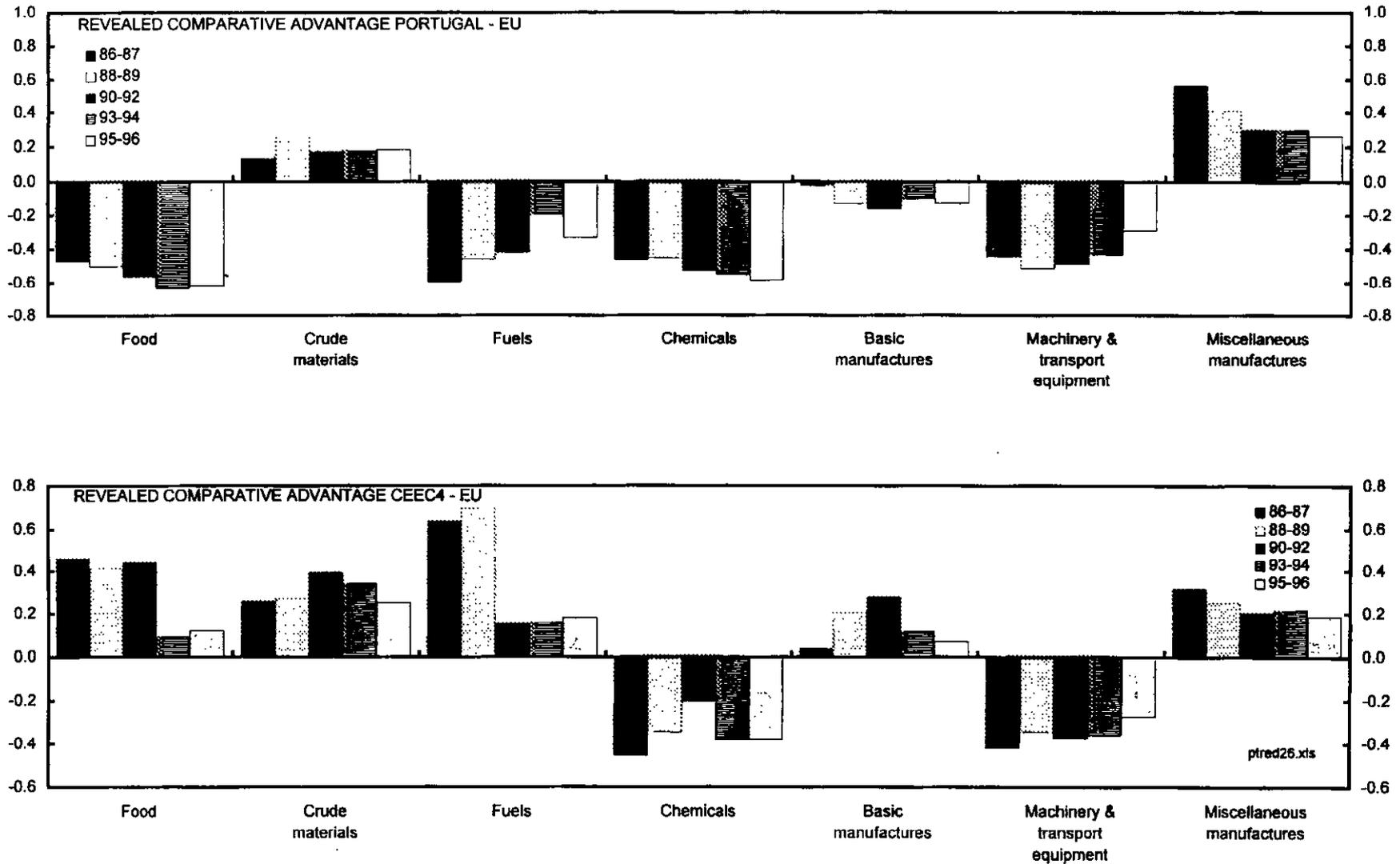
Sources: IMF, Trade Analysis and Reporting System

Figure 18. Portugal: Revealed Comparative Advantage Vis-à-Vis CEEC4

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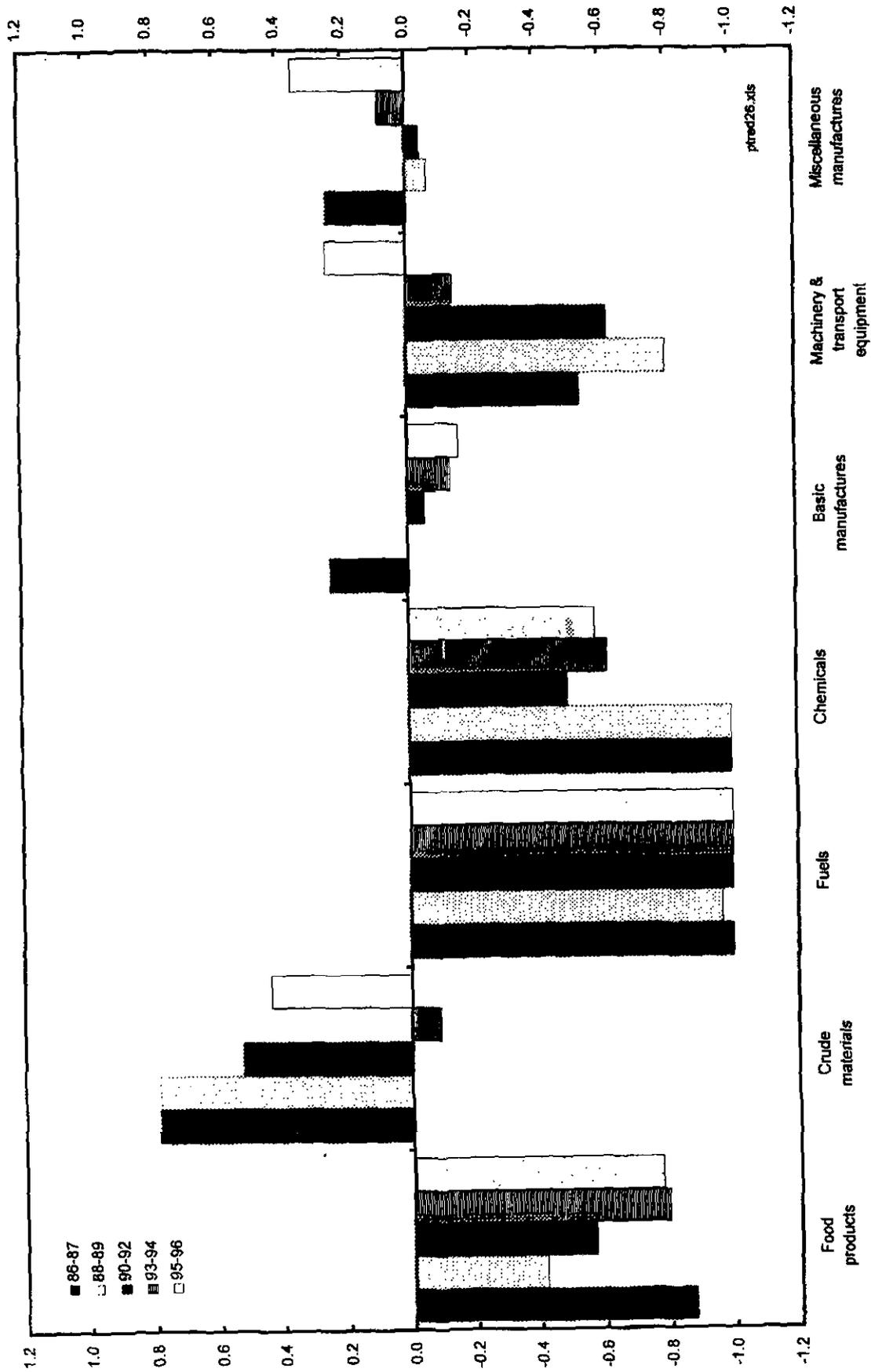
Sources: IMF, Trade Analysis and Reporting System.

A GRAVITY MODEL FOR PORTUGAL

121. This appendix briefly describes the gravity model estimated for Portugal. It provides a summary of the model, and the main estimates.

122. Gravity models attempt to explain the importance of geographic proximity and industrial structure in international trade flows. Theoretical foundations for this approach were provided by Helpman and Krugman (1985), while the use of this class of model was popularized in Baldwin (1994). Essentially, gravity models assume that bilateral trade between two countries can be explained by each country's size and income per capita, the distance between them, and other specific variables, notably the membership in trade blocs.

123. While originally computed for aggregate trade, the use of these models has been extended to analyze sectoral trade (Vittas and Mauro, 1997). As noted there, there is no a priori reason to believe that the extent to which income or distance affect trade flows is the same for all commodity groups. The basic specification (Baldwin, 1994) is the following:

$$X_{ij} = \beta_0 + \beta_1(Y_i/P_i) + \beta_2(Y_j/P_j) + \beta_3 P_i + \beta_4 P_j + \beta_5 D_{ij} + \beta_6 Border_{ij} + \beta_7 Trbloc_{ij}$$

where X is the log of export flows, Y/P is the log of per capita output, P is the log of the population, D is the log of the distance between the two countries, and the dummy variables Border and Trbloc indicate whether the two countries are adjacent and belong to a common trade bloc.

124. The source of data on trade flows is the United Nations trade statistics system (TARS), while GDP and population statistics were drawn from the International Financial Statistics. Distances were compiled from a variety of sources. The sample used for the estimation covered 1988–95. For the purpose of the estimation, averages over the period were used (so as to neutralize cyclical effects, although using subsamples did not change results dramatically). The number of observations in each sectoral panel (i.e., without considering the longitudinal dimension) varied between 300 and 600. Although the sample comprised trade among 34 countries, estimates were based on trade among the 18 largest economies, under the assumption that these flows would reflect the "potential" trade among diversified free economies.

125. The following table gives the parameter estimates obtained through ordinary least squares:

Portugal: Parameter Estimates for the Gravity Model

Variable	C	Yi/Pi	Yj/Pj	Pi	Pj	D	Border	TrdBloc
Chemicals					R squared = 0.69			
Estimated Coefficient	-2.78	0.54	0.43	0.59	0.56	-0.60	0.18	0.11
Standard Error	1.06	0.07	0.06	0.04	0.04	0.05	0.12	0.11
Machinery and Transportation Equipment					R squared = 0.72			
Estimated Coefficient	-7.29	0.75	0.64	0.78	0.66	-0.52	0.27	0.31
Standard Error	1.16	0.08	0.06	0.04	0.04	0.05	0.12	0.12
Transportation Equipment					R squared = 0.67			
Estimated Coefficient	-11.07	0.88	0.77	1.00	0.62	-0.62	0.36	0.53
Standard Error	1.60	0.11	0.09	0.08	0.06	0.09	0.21	0.20
Paper					R squared = 0.08			
Estimated Coefficient	4.21	0.19	0.06	0.00	0.04	-0.23	0.19	-0.22
Standard Error	2.06	0.15	0.10	0.07	0.06	0.11	0.33	0.25
Iron and Steel					R squared = 0.65			
Estimated Coefficient	-1.18	0.18	0.46	0.52	0.55	-0.50	0.42	0.18
Standard Error	1.06	0.07	0.06	0.05	0.04	0.06	0.13	0.12
Textiles					R squared = 0.75			
Estimated Coefficient	-4.84	0.86	0.59	1.18	0.66	-1.47	-0.16	-0.12
Standard Error	2.32	0.12	0.11	0.11	0.08	0.12	0.37	0.35
Clothing					R squared = 0.34			
Estimated Coefficient	1.50	-0.24	0.52	0.30	0.34	-0.29	0.65	0.34
Standard Error	1.80	0.09	0.13	0.06	0.06	0.09	0.20	0.17
Footwear					R squared = 0.57			
Estimated Coefficient	-13.14	0.38	1.25	0.66	0.58	-0.74	0.93	0.31
Standard Error	2.89	0.15	0.15	0.13	0.10	0.15	0.43	0.40

Source: Staff Calculations

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IV. CURRENT ACCOUNT FLUCTUATIONS: RESPONDING TO CURRENT AND EXPECTED INCOME CHANGES [57]

126. This chapter attempts to apply and test an intertemporal model of the current account for Portugal. Specifically, it attempts to investigate the extent to which fluctuations in the current account balance over the last forty years reflect optimizing behavior as regards saving decisions on the part of Portuguese households.

127. Approaching external performance from the perspective of emphasizing that the current account balance essentially reflects the extent to which a country relies on foreign savings to finance its consumption and investment needs is of particular relevance in view of the prospective start of EMU and the growing importance of international capital movements. In the past, exchange rate fluctuations could act as an important channel through which changes in residents' desired net savings could be accommodated. EMU, however, will eliminate the possibility of exchange rate changes among Portugal and its main trading partners. In this context, the effects in question will be transmitted through (sometimes subtler but more persistent) variations in real economic variables. The elimination of exchange rate movements among EMU participants is likely, on the other hand, to promote capital flows. This would enhance the possibility for countries to offset temporary drops in domestic income by availing themselves of external savings, thereby smoothing their consumption schedule. These developments would tend to assign special relevance to intertemporal approaches to the current account. The "consumption smoothing" approach, although dispensing with direct recourse to the exchange rate as an explanatory variable, subsumes this and other economic variables in the factors conditioning agents' optimal saving schedule and accompanying borrowing and lending flows.

128. In this chapter, a simple intertemporal model based on the permanent income hypothesis is estimated and used for assessing the behavior of Portugal's external accounts. Section A presents a general discussion of the approach, followed in Section B by a description of the model. Empirical results are discussed in Section C, the main findings in Section D, and conclusions drawn in Section E.

A. The Intertemporal Approach to the Current Account

129. The intertemporal approach to the external accounts investigates the extent to which the current account balance reflects an "optimal" path of domestic savings and consumption arising from a model of optimal borrowing and lending. This class of model predicts that the amount of foreign savings absorbed by the economy responds primarily to agents' desire to smooth consumption, in view of expected changes in disposable income, and subject to the external solvency of the country. This approach can entail at least two broad sets of policy implications. First, to the extent that the actual current account deviates from its "optimal"

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level, one may inquire what distortions or constraints are limiting the ability of agents to smooth consumption through borrowing and lending. Second, as the approach builds on partial equilibrium models, wide fluctuations of the "optimal" current account prompt questions about underlying imbalances conditioning agents' decisions. In answering these questions, exogenous external shocks and government policies would emerge as natural candidates for scrutiny. In particular, a large "optimal" deficit may not imply a sustainable situation, but an extreme (although optimal from the point of view of economic agents) response to a serious macroeconomic imbalance. For instance, if the fiscal policy stance is perceived as unsustainably lax, but imported durable goods are more sheltered from taxes than domestic financial assets, the optimal reaction of residents in anticipation of a reversal of such a stance could lead to a marked deterioration of the current account.

130. The consumption smoothing approach to analyzing the current account is based on the permanent income theory of consumption and saving. Essentially, this theory postulates that forward-looking agents choose their consumption level taking into account their permanent income—broadly, the constant income yielded by their net wealth. They will, therefore, decrease their saving whenever new information leads them to *expect* their income to increase. The model will, therefore, predict a very different impact on the current account of a change in income, depending on whether the change is perceived as temporary or permanent.[58] This reasoning would thus imply that a decline in national income which is expected to be temporary will be accompanied by a temporary deterioration in the current account, as agents would not alter their consumption schedule. Instead, they would avail themselves of foreign savings, counting on a rebound of the economy. By contrast, after a permanent shock (i.e., a shock that reduces permanent income as it will not be reversed in the future), the current account should not change, as agents should instead fully adjust their consumption schedule to the new situation.

131. The "optimal" current account balance thus depends fundamentally on agents' expectations about future income. This, of course, complicates the calculation of such a balance on the basis of the observation of macroeconomic variables, as expectations are not observable. While past behavior of income can provide useful information about its future path, it hardly reflects the expectations that economic agents can formulate based on all the information they have available at each period. In particular, such projections may not capture expected policy changes that may have a bearing on future income, or within-period external shocks.

132. Although the information set used by agents could be approximated by expanding the number of variables used to estimate future income, Campbell (1987) and Campbell and Shiller (1987) suggest another approach. They note that, under some not overly restrictive assumptions (notably that income follows a random walk), the permanent income theory predicts a particular joint behavior of saving and income, and makes saving itself the best instrument to forecast changes in income. This permits the econometrician to extract the

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[58]The intertemporal model treats investment decisions as separate from saving decisions.

"optimal" current account from the actual current account and observed changes in income. Campbell's insight has been extensively used to analyze savings decisions and, in particular, the current account (Ghosh, 1995; Ghosh and Ostry, 1994; Sheffrin and Woo, 1990).[59] It permits to test the fit of the consumption smoothing model statistically, and to compare "optimal" and actual current account balances over time (it also permits to use the observed current account to forecast changes in national income). The model is described in greater detail in the next section. The hurried (or less technically inclined) reader can forego this section and pass on to the subsequent sections, where the empirical results are presented and analyzed.

B. A Present-Value Model of the Current Account

133. The application of the permanent income theory to the analysis of the current account starts with a representative agent maximizing a time-separable utility function $U = \Sigma_t a^t u(c_t)$, where a is the discount rate and c_t is consumption at time t, under a sequence of budget constraints:

$$b_{t+1} = (1+r) b_t + y_t - c_t \tag{3}$$

where y_t is the disposable income, and b_t is the holdings of an indexed bond. Under certain conditions (such as a quadratic utility function, and a constant real interest rate r), it can be shown that at each period the optimal consumption (c^*) will amount to a fixed fraction of the present value of the expected stream of future income plus the current yield of the bond b (see Campbell, 1987). Optimal saving (s^*) is, in turn, equal to the expected present value of future changes in income:

$$c_t^* = r b_t + (r/(1+r)) - \Sigma_{j=0}^{\infty}(1+r)^{-j} E_t y_{t+j} \tag{4}$$

$$s_t^* = -\Sigma_{j=1}^{\infty}(1+r)^{-j} E_t \Delta y_{t+j} \tag{5}$$

Which implies that

$$s_t^* - \Delta y_t - (1+r)s_{t-1}^* = -(r/(1+r))\Sigma_{j=1}^{\infty}(1+r)^{-j} [E_t \Delta y_{t+j} - E_{t-1} \Delta y_{t+j}] \tag{6}$$

cannot be forecast on the basis of information available at time t-1, as it reflects the revision from t-1 to t in the expected value of future income.

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[59]Ostry and Levy (1995) use a similar approach to study household saving in France.

134.   Simple manipulation of (1), (2), and (4) will show that changes in optimal consumption cannot be forecast either. Moreover, under the assumption that changes in income are stationary, it is easy to see that saving (as the present value of future *changes* in income) will also be stationary, while consumption will be a random walk. This will imply that the vector *w* comprising total income (i.e., including the yield of the bond) and consumption is cointegrated (saving being the difference between the two terms). Therefore, the vector *w* has an error-correction representation, in which changes in income are predicted using lagged changes in income and consumption, together with lagged deviations of consumption from income (i.e., roughly, lagged saving).

135.   Although an error-correction model is not a VAR, it can be put into VAR form (see Campbell, 1987). In the case at hand, equation (3) allows the model to be expressed as a VAR relating current and lagged saving and changes in income. This is so because equation (3) includes both the variable being forecast (changes in income), and the optimal forecast, that is, the variable that best captures the information available about future changes in income (saving). The number of lags in the VAR will correspond to the number of lags in the error-correction model that would make the forecast error a white noise. Empirically, the number of lags will be chosen based on the fitting of the VAR.

136.   The above results can be extended to an economy with production, investment, and government at the cost of a few additional assumptions. These boil down to postulating that investment is optimally chosen to maximize the country's wealth and that the government relies on nondistortionary taxes (as Ricardian equivalence is implicit in the representative agent assumption, the solvency assumption extends to the government budget constraint). In this case, Fisherian separability implies that investment decisions may be treated as exogenous to the consumption/saving rule (Sheffrin and Woo, 1990).[60] The relevant income flow z to be considered comprises national income net of public consumption and total investment. In this case, the optimal external account can be written as:

$$ca_t^* = -\Sigma_{j=1}^{\infty}(1+r)^{-j} E \Delta z_{t+j} \tag{7}$$

137.   Under the separability hypothesis discussed, the reasoning developed in the previous paragraphs is still valid, and the auto correction model can be transformed into a bivariate

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[60]For an empirical investigation of the correlation between investment and the current account in developed economies see Glick and Rogoff (1993).

vector autoregression, with lagged saving (i.e., lagged current account balances) and lagged changes in income explaining current savings and changes in income:[61] [62]

$$
\begin{bmatrix} \Delta z_t \\ ca_t \end{bmatrix} = \begin{bmatrix} \phi_{11} & \phi_{12} \\ \phi_{21} & \phi_{22} \end{bmatrix} = \begin{bmatrix} \Delta z_{t-1} \\ ca_{t-1} \end{bmatrix} + \epsilon_t
$$

where ϵ_t is a white noise. This system may be written more compactly as:

$$
x_t = \Phi x_{t-1} + \epsilon_t
$$

where $x'_t = [\Delta z_t \quad ca_t]$, and the k-step ahead expectation of x_t is given by:

$$
E\, x_t = \Phi^k x_t
$$

In this case, (5) becomes a geometric sum and the current account can be expressed as follows:

$$
ca_t^* = -[1 \quad 0][\Phi/(1+r)][I-\Phi/(1+r)]^{-1} x_t = \Gamma x_t
$$

Note that, owing to the restrictions mentioned above, the expression of the optimal current account turns out to be a combination of the contemporaneous actual current account and change in income.

C. Empirical Results

138. Two set of estimations were performed, reflecting the importance of international transfers in the case of Portugal. The first estimation starts from national disposable income (as measured in the recently released "long series" of the national accounts). In this case, the disposable cashflow corresponds to national disposable income, minus government

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[61]For clarity the system is assumed to have only one lag. A larger number of lags can be easily accommodated by stacking the lagged variables in a vector, and making the appropriate choice of coefficients in the conformed matrix.

[62]Saving enters the VAR in a detrended form. The reason for this is that although saving is stationary, any divergence between the interest r rate and the subjective rate of time preference a will introduce a trend into the saving function (Caballero, 1990). The deterministic trend of saving is added back when "optimal" values are compared with actual values.

consumption and total investment *net* of international capital transfers. The relevant saving concept is the current account balance minus capital transfers from the European Union. The second estimation uses less precise concepts which, however, permit extending the analysis to more recent years (the "long series" end in 1993). In the second estimation, the disposable cashflow corresponds to GDP net of government consumption and total investment, and the current account includes capital transfers. Results varied relatively little, and the discussion will thus concentrate on the second estimation.

139.   As a first step, the saving variable (i.e., the current account at constant prices) was tested for stationarity, the hypothesis of a unit root being rejected at the 10 percent significance level. The rejection of the hypothesis of nonstationarity of the current account can be interpreted as evidence of long-run current account solvency.[63] The VAR model was estimated with the number of lags specification being determined based on the Akaike and Schwarz criteria. While the Akaike criterion was essentially indifferent between one and three lags, the Schwarz criterion unmistakably favored the one-lag specification.

140.   The coefficient estimates for the VAR (table below) indicate that the information in the current account is relevant in estimating future changes in the disposable cashflow. Indeed, the coefficient (-0.18) is correctly signed and significant. Moreover, a Granger causality test indicates that the information on the current account makes a significant contribution to predictions of changes in disposable income (the hypothesis of block exogeneity, i.e., of non-Granger causality is rejected at 2.5 percent significance level). Therefore, increases in saving tend to anticipate a decline in income, or conversely, a deterioration of the current account reflects expectations of an improvement in the disposable cashflow in the period ahead.

VAR Parameters and Implications for the Γ vector

a. VAR Parameters

	dz_{t-1}	Standard error	ca_{t-1}	Standard error
dz	0.58*	0.12	-0.18*	0.09
ca	0.00	0.15	0.72*	0.11

b. Implied Γ vector

Γ_y	Standard error	Γ_{ca}	Standard error
-1.25*	0.64	1.15*	0.71

Note: * denotes significance of the coefficient at 5 percent level. (Estimation period 1953–93).

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[63]The hypothesis of a unit root in changes in income was rejected at 1 percent significance level.

141.   The analysis of the vector Γ, also confirms the relatively good fit of the model.[64] If the actual current account agreed completely with the optimal current account predicted by the permanent income hypothesis, the first component of the vector would be zero, and the second would be one. While Γ_y lies somewhat away from its theoretical value, Γ_{ca} closely agrees with it, and overall the model cannot be rejected at a 10 percent significance level.[65]

D. Main Findings

142.   In view of the general acceptance of the statistical restrictions implied by the consumption smoothing hypothesis, it would be interesting to verify the predictions of the model. To get a grasp of these predictions, the actual current account should be compared to the "optimal" account. The two series move remarkably closely over the forty-year period (Figure 19), with significant divergences occurring only in a few instances. Most notable among these occasions are the years in which Portugal entered into stand-by arrangements with the Fund (1978 and 1983), suggesting that liquidity constraints were binding at the time. Another instance when the model's predictions and the actual current account diverged was in 1989–90. While the "optimal" current account deteriorated, the actual current account balance improved. This improvement reflected in large part the sharp increase in taxes in 1989 (20 percent in real terms), following income tax reform and an accompanying change in the collection period, which entailed the collection of taxes levied on income received in 1988 and 1989 (income tax collection grew by 35 percent in real terms). The effect of such tax increases on households' disposable income, coupled with a liquidity shortage due to credit restraint, resulted in a rapid deceleration of private consumption, notably of durable goods (Bank of Portugal, 1990). Credit restraint stemmed in some cases from government action (e.g., with respect to the financing of car purchases), but it would appear that, in the event, liquidity constraints in general impinged on consumers' ability to offset the temporary reduction in disposable income entailed by the change in the timing of tax collection.

143.   The predictions of the model for recent years appear quite intuitive. It is noteworthy that, as signs of a slowdown in economic activity in the rest of EU started to emerge in 1992, the optimal current account improved, as if in anticipation of a negative shock to income in Portugal. In the same vein, the balance showed a deterioration in 1993, followed by some improvement in 1994 as economic activity firmed.

144.   The success of the model in tracking the actual current account over the last forty years is somewhat surprising, in view of the existence of capital controls as recently as the early 1990s. This behavior, which has been observed also in some other small European

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[64]Varying the interest rate in the 3–10 percent range did not alter the results substantially. Figures reported in the table are for an interest rate of 5 percent.

[65]The inference is based on a Wald test of the joint hypothesis that the value of the first component is zero and that of the second is 1.

economies (e.g., Denmark and Sweden),[66] appears to contradict the notion popularized by Feldstein and Horioka (1980) that international capital flows react insufficiently to changes in desired saving. Indeed, the variance of the optimal current account of Portugal is close to that of the actual current account. This suggests that, except on occasions of a very large widening of the current account deficit, Portugal has not faced major borrowing constraints.

145.   The fact that the "optimal" current account shows relatively large swings can, on the other hand, be seen as consistent with the stylized fact that the business cycle in Portugal is very pronounced, as noted in Chapter I. While external shocks appear to have had a strong impact on the economy, shocks to income can probably also be traced to domestic fiscal or monetary policy. For instance, while the current account deteriorated following the two oil shocks, policy actions may have also contributed to this outcome. A deterioration of the current account can be exacerbated if corrective policies perceived as required to redress some macroeconomic imbalance, while amply anticipated, are delayed.[67] In these cases, financial saving may be diverted toward durable goods, with a further impact on the current account (since a good proportion of these goods is imported). Fluctuations of emigrants' remittances, which have at times contributed to the observed swings in the current account, could also be seen under the light of optimal saving behavior in anticipation of policy changes (Schmitt, 1981 conjectures that they react inter alia to anticipation of changes in the exchange rate and financial policies).[68] It would be of interest to test these conjectures using the recently released "long series," but such work extends beyond the scope of the present paper.

146.   Finally, the deterioration of the optimal balance since 1995 could be interpreted as agents' reactions to increasingly positive expectations, which were most likely not previously anticipated. In particular, the decline in saving may reflect the firming of the prospects of an early participation in EMU, with the associated perception that participation will strengthen economic performance. The anticipated acceleration of growth (fueled also by factors such as the 1998 World Expo) would thus justify a temporary deterioration of the current account. If

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[66]Sheffrin and Woo (1990) report results for Denmark and Obstfeld and Rogoff (1994) report results for Sweden.

[67]The impact of anticipated fiscal policy changes on consumption has been examined in a somewhat different context by Bertola and Drazen (1993).

[68]The extent to which the model may have picked up "optimal" reactions to anticipated policy changes—in particular of the exchange rate regime—illustrates how the approach, while abstracting from fluctuations in the exchange rate, subsumes the information relevant for agents' decisions. On the other hand, the assumptions embodied in the model should be kept in mind. In particular, a rigorous interpretation of the assumption of fixed interest rate would limit the extent to which saving decisions can be attributed to expectations of changes in the real return on financial assets (such expectations can nevertheless be accommodated in more elaborate models).

this is the case, and provided financial policies remain prudent, a narrowing of the current account deficit would be likely looking forward.

E. Conclusion

147. Portugal's current account seems in good measure to reflect a desire on the part of residents to smooth consumption. A simple intertemporal model aimed at explaining fluctuations in the current account based on the permanent income hypothesis could not be statistically rejected. Moreover, the "optimal" current account implied by the model tracked the actual current account quite closely. The emergence of a deficit in the optimal current account in recent years appears to signal agents' expectations of a further acceleration of economic activity in the period ahead. The model would predict, however, that the current account deficit should narrow as the expected positive events, largely of an exceptional nature, materialize.

Figure 19. Portugal: Consumption Smoothing and the Current Account
(Actual and "optimal" current account as percentage of GDP)
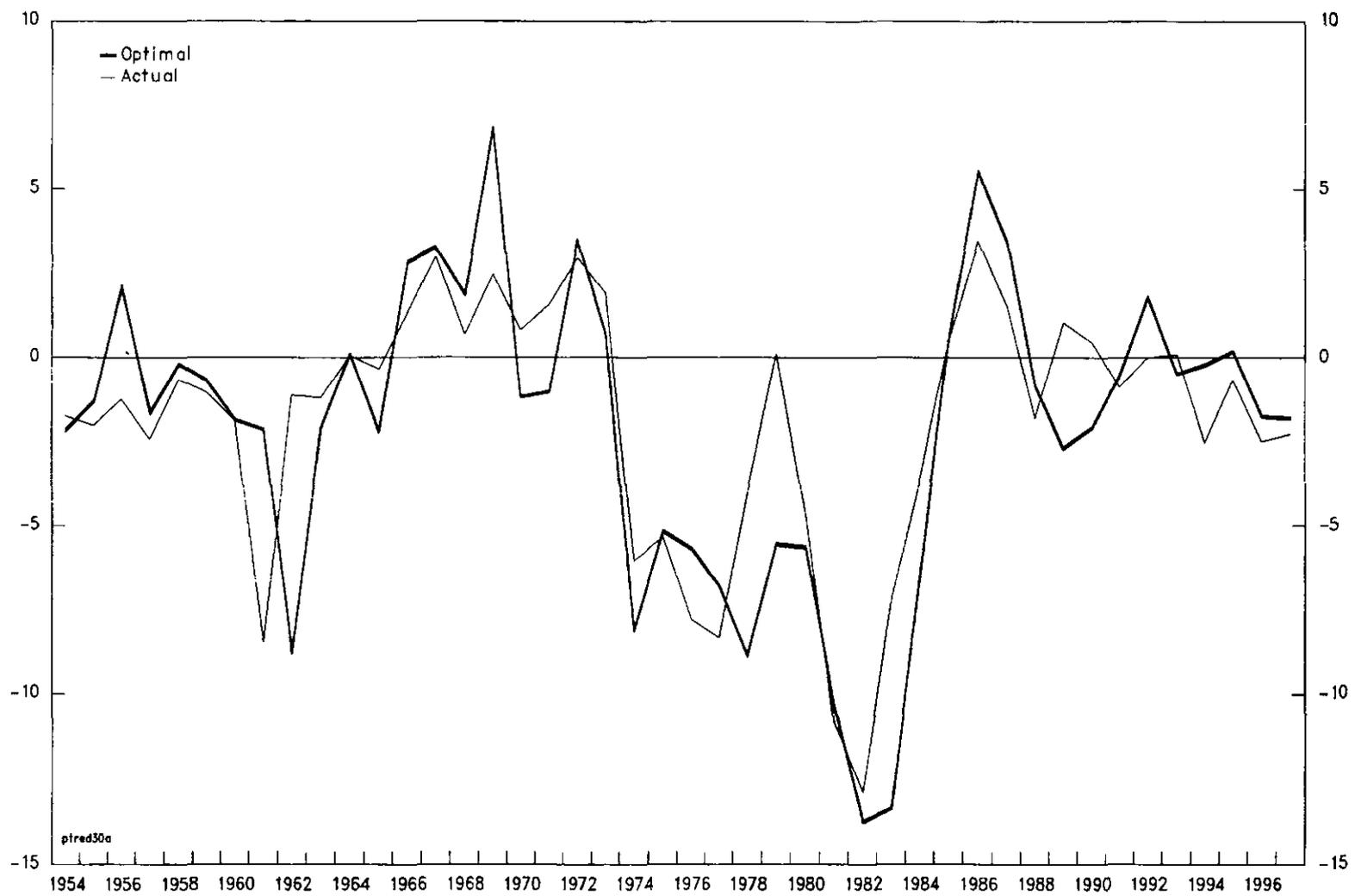
Source: Staff calculations.

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Table 1. Portugal: Aggregate Demand

	1991	1992	1993	1994	1995	1996
			(In billions of escudos, at current prices)			
Private consumption	7,244.5	8,346.9	8,887.7	9,382.3	9,973.6	10,575.8
Public consumption	1,955.7	2,242.1	2,420.1	2,566.6	2,778.1	3,013.9
Investment	3,087.7	3,543.9	3,406.9	3,624.9	3,836.8	4,146.3
Gross fixed investment	2,987.7	3,426.5	3,319.1	3,512.4	3,670.3	4,017.2
Change in stocks	100.0	117.4	87.7	112.5	166.5	129.1
Total domestic demand	12,287.9	14,132.9	14,714.7	15,573.9	16,588.5	17,736.0
Exports (goods and services)	3,565.6	3,633.5	3,701.2	4,242.2	4,923.0	5,209.4
Aggregate demand	15,853.6	17,766.4	18,415.9	19,816.0	21,511.5	22,945.3
Imports (goods and services)	4,604.8	4,817.3	4,739.7	5,382.4	6,004.8	6,471.3
GDP	11,248.8	12,949.0	13,676.2	14,433.6	15,506.7	16,474.0
			(Percentage change at constant prices)			
Private consumption	5.2	4.6	-0.3	0.2	2.0	2.8
Public consumption	3.2	1.5	-1.0	1.6	1.9	1.1
Investment	1.8	6.1	-8.3	3.3	3.2	6.1
Gross fixed investment	2.5	5.6	-7.6	2.7	1.9	7.4
Total domestic demand	4.0	4.5	-2.4	1.1	2.3	3.3
Exports (goods and services)	2.1	4.6	-0.6	10.0	11.7	8.5
Aggregate demand	3.5	4.5	-2.0	2.9	4.3	4.5
Imports (goods and services)	6.4	11.4	-4.7	9.9	9.7	7.5
GDP	2.2	1.7	-1.1	0.5	2.3	3.3
			(Percentage change, implicit deflators)			
Private consumption	12.1	10.2	6.8	5.4	4.2	3.1
Public consumption	23.6	13.0	9.0	4.4	6.2	7.3
Investment	11.2	8.2	4.8	3.0	2.5	1.9
Gross fixed investment	11.6	8.7	4.9	3.0	2.5	1.9
Total domestic demand	13.6	10.1	6.7	4.7	4.1	3.5
Exports (goods and services)	0.2	-2.6	2.5	4.2	3.9	-2.4
Aggregate demand	10.2	7.2	5.8	4.6	4.1	2.1
Imports (goods and services)	0.5	-6 1	3.2	3.4	1.7	0.3
GDP	14.8	13 2	6.8	5.0	5.0	2.8

Sources: Bank of Portugal; and National Institute of Statistics.

Table 2. Portugal: Contributions of Demand Components to Real GDP Growth 1/

(Percentage change)

	1991	1992	1993	1994	1995	1996
Private consumption	3.3	3.0	-0.2	0.1	1.3	1.8
Public consumption	0.5	0.3	-0.2	0.3	0.3	0.2
Investment	0.5	1.7	-2.3	0.8	0.8	1.5
Gross fixed investment	0.7	1.5	-2.0	0.7	0.5	1.8
Change in stocks	-0.2	0.2	-0.2	0.2	0.3	-0.2
Domestic demand	4.3	4.9	-2.6	1.2	2.5	3.5
Exports (goods and nonfactor services)	0.7	1.5	-0.2	2.7	3.4	2.7
Aggregate demand	5.1	6.3	-2.8	3.9	5.9	6.2
Imports (goods and nonfactor services)	-2.9	-4.7	1.7	-3.4	-3.6	-2.9
GDP	2.2	1.7	-1.1	0.5	2.3	3.3

Sources: Bank of Portugal; and National Institute of Statistics.

1/ Based on the structure of the previous year (at current prices).

Table 3. Portugal: Consumption and Investment Indicators

(Year-on-year real percentage change)

		Consumption			Investment			
		Current consumption total 1/	Auto sales 2/	Gasoline sales	Machinery imports 3/	Sales of commercial vehicles		Cement 6/	Steel 7/
						Light 4/	Heavy 5/		
	1991	7.6	7.9	10.0	6.6	-1.2	-9.2	4.1	-1.9
	1992	3.0	22.1	13.1	6.3	21.1	-5.0	2.2	15.9
	1993	1.0	-12.7	6.0	13.8	-1.6	-28.1	-0.9	-7.3
	1994	5.4	-3.7	3.0	3.4	22.4	-21.8	0.6	19.5
	1995	5.7	-13.5	1.7	14.8	-33.4	6.2	4.3	13.8
	1996	...	8.1	2.8	9.0	27.1	4.4	6.6	11.9
	1992								
I		2.1	28.5	18.7	5.2	24.9	6.3	11.0	29.0
II		5.4	25.6	12.7	-1.8	23.0	-7.1	-1.5	4.8
III		3.8	12.2	11.0	10.8	17.6	-6.0	-0.2	14.7
IV		1.0	21.6	11.4	6.8	19.2	-11.8	0.4	17.0
	1993								
I		2.1	-7.0	8.0	...	6.2	-28.3	1.1	-3.1
II		0.4	-16.9	7.4	...	2.6	-18.9	2.8	17.6
III		0.5	-9.0	4.9	...	-4.9	-31.5	-2.2	-19.1
IV		1.2	-16.9	4.3	...	-9.8	-3.8	-5.6	-21.6
	1994								
I		4.0	-8.2	5.4	-8.1	5.0	-28.7	-8.8	-7.3
II		-0.3	2.8	4.6	-0.7	10.4	-25.7	-3.3	-2.9
III		0.4	-8.2	2.2	8.7	14.3	-22.5	5.6	41.5
IV		1.5	-1.6	0.4	14.9	60.3	-11.3	10.1	57.9
	1995								
I		-2.5	-11.1	1.6	19.9	-24.5	1.1	10.6	38.0
II		4.9	-12.6	2.1	9.9	-29.2	3.0	9.7	30.4
III		4.9	-7.3	0.7	18.5	-27.3	2.8	0.7	-2.0
IV		3.4	-22.4	2.6	12.3	-46.1	16.7	-3.1	-1.8
	1996								
I		...	11.0	3.7	15.0	10.3	6.4	-7.2	-13.8
II		...	1.3	1.0	10.2	24.8	-2.8	2.8	-0.2
III		...	5.4	3.1	6.2	30.0	8.4	12.0	30.4
IV		...	16.5	3.5	5.7	43.2	6.4	19.5	32.7
	1997								
I		...	-4.0	0.8	...	28.3	14.7	22.6	...

Sources: Bank of Portugal; and National Institute of Statistics.

1/ Based on sales by main supermarkets. New series since 1994.
2/ Passenger vehicles, excluding 4x4.
3/ Until 1995, imports of capital goods, excluding transport equipment.
4/ Light commercial vehicles, excluding 4x4.
5/ Heavy commercial vehicles, excluding 4x4.
6/ Sold to construction industry.
7/ 1991–92 includes steel imports.

Table 4. Portugal: Composition and Structure of Gross Fixed Investment 1/

	1991	1992	1993	1994	1995	1996
			(Real growth in percent)			
Gross fixed investment	2.5	5.6	-7.6	2.7	1.9	7.4
Construction	4.5	2.5	-0.6	1.1	5.0	6.5
Equipment goods	1.3	6.0	-14.7	-5.1	9.1	11.1
Transport equipment	-0.9	16.2	-10.6	31.0	-21.7	1.0
			(In percent of total)			
Composition by sector						
Public sector	29.0	29.3	30.6	28.7	31.3	...
General government	14.2	15.3	17.2	15.8	16.6	16.9
Public enterprises 2/	14.8	14.0	13.4	12.9	13.4	...
Private sector 3/	71.0	70.7	69.4	71.3	70.0	83.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Structure						
Construction	45.8	46.2	49.1	48.3	50.3	50.7
Equipment goods	42.6	40.8	37.8	34.9	36.0	36.7
Transport equipment	11.6	13.0	13.1	16.8	13.7	12.6

Sources: Bank of Portugal; and Ministry of Finance.

1/ Figures for public enterprises are based on estimates provided by the GAFEEP.
Private sector investment (including nationalized banks) was calculated as a residual.
2/ Nonfinancial public enterprises.
3/ The figure for 1996 includes public enterprises investment.

Table 5. Portugal: Distribution of National Income

	1991	1992	1993	1994	1995	1996
			(In billions of escudos)			
1. Wage income	5,002.1	5,754.9	6,041.6	6,223.1	6,542.2	6,924.7
2. Gross operating surplus	4,817.6	5,447.4	5,930.8	6,262.0	6,854.5	7,307.1
3. GDP at factor cost (3=1+2)	9,819.7	11,202.3	11,972.4	12,485.1	13,396.7	14,231.8
4. Indirect taxes net of subsidies	1,429.2	1,746.7	1,703.8	1,948.5	2,110.0	2,242.2
5. GDP at market price (5=3+4)	11,248.8	12,949.0	13,676.2	14,433.6	15,506.7	16,474.0
6. Net factor payment from abroad	10.8	90.0	-22.8	-122.2	-102.3	-203.5
7. GNP at factor cost (7=3+6)	9,830.5	11,292.3	11,949.6	12,362.9	13,294.4	14,028.3
8. GNP at market price (8=5+6)	11,259.6	13,039.0	13,653.4	14,311.4	15,404.4	16,270.5
9. Net unrequited transfers	659.0	690.5	699.8	584.1	638.5	644.0
10. National disposable income (10=8+9)	11,918.6	13,729.5	14,353.2	14,895.5	16,042.9	16,914.5
Households	8,777.0	9,926.3	10,492.4	10,954.4	11,527.5	12,224.6
Firms	1,435.3	1,485.1	1,763.6	1,786.7	2,110.9	1,764.1
General government	1,706.3	2,318.1	2,097.3	2,154.4	2,404.6	2,925.8
			(Percentage change)			
1. Wage income	15.8	15.0	5.0	3.0	5.1	5.8
2. Gross operating surplus	19.9	13.1	8.9	5.6	9.5	6.6
3. GDP at factor cost (3=1+2)	17.8	14.1	6.9	4.3	7.3	6.2
4. Indirect taxes net of subsidies	14.6	22.2	-2.5	14.4	8.3	6.3
5. GDP at market prices (5=3+4)	17.4	15.1	5.6	5.5	7.4	6.2
Memorandum item:						
Share of wage income in GDP						
factor cost	50.9	51.4	50.5	49.8	48.8	48.7

Sources: Bank of Portugal; and National Institute of Statistics.

Table 6. Portugal: Disposable Income

	1991	1992	1993	1994	1995	1996
	(In billions of escudos)					
Disposable household income	8,777.0	9,926.3	10,492.4	10,954.4	11,527.5	12,224.6
Private consumption	7,244.5	8,346.9	8,887.7	9,382.3	9,973.6	10,575.8
Households saving	1,532.5	1,579.4	1,604.6	1,572.0	1,553.9	1,648.8
Saving rate (in percent)	17.5	15.9	15.3	14.4	13.5	13.5
Saving rate (corrected for inflation)	10.7	9.5	10.7	10.6	10.6	11.4
Direct taxes	695.2	923.6	950.9	989.1	1,054.5	1,137.9
Social security taxes	1,327.7	1,567.1	1,723.3	1,853.1	2,023.3	2,185.5
Personal income	10,133.8	11,775.5	12,551.6	13,222.2	14,095.5	15,029.6
Wage bill	5,002.1	5,754.9	6,041.6	6,223.1	6,542.2	6,924.7
Other earned income	3,585.7	4,170.3	4,348.0	4,609.0	4,895.8	5,217.2
Domestic currency transfer	1,546.0	1,850.3	2,162.0	2,390.1	2,657.5	2,887.7
Transfers from abroad	666.2	641.5	615.1	574.4	509.9	518.3
Memorandum items:						
Disposable household income						
(except transfers from abroad)	8,110.8	9,284.8	9,877.3	10,380.0	11,017.6	11,706.3
Household savings						
(except transfers from abroad)	866.3	937.9	989.5	997.6	1,044.0	1,130.5
Savings rate (except transfers from abroad)	10.7	10.1	10.0	9.6	9.5	9.7
	(Percentage change)					
Disposable income	17.2	13.1	5.7	4.4	5.2	6.0
Real disposable income 1/	4.5	2.6	-1.0	-0.9	1.0	2.9
Personal income	19.0	16.2	6.6	5.3	6.6	6.6
Wage bill	15.8	15.0	5.0	3.0	5.1	5.8
Other earnings income	21.1	16.3	4.3	6.0	6.2	6.6
Domestic currency transfer	25.3	19.7	16.8	10.6	11.2	8.7
Private external transfers	4.4	-3.7	-4.1	-6.6	-11.2	1.6

Sources: Bank of Portugal; and National Institute of Statistics.

1/ Deflated by the private consumption deflator.

Table 7. Portugal: Savings and Investment

	1991	1992	1993	1994	1995	1996
			(In billions of escudos)			
Domestic saving	2,718.4	3,140.5	3,045.3	2,946.5	3,291.2	3,324.8
Private (including public						
enterprises)	2,967.8	3,064.5	3,368.2	3,358.7	3,664.8	3,412.9
Households	1,532.5	1,579.4	1,604.6	1,572.0	1,553.9	1,648.8
Firms	1,435.3	1,485.1	1,763.6	1,786.7	2,110.9	1,764.1
Public (general government)	-249.4	76.0	-322.8	-412.2	-373.5	-88.1
Foreign saving	369.3	403.4	361.6	678.4	545.6	821.5
Gross saving = gross investment	3,087.7	3,543.9	3,406.9	3,624.9	3,836.8	4,146.3
Gross fixed capital formation	2,987.7	3,426.5	3,319.1	3,512.4	3,670.3	4,017.2
Change in stocks	100.0	117.4	87.7	112.5	166.5	129.1
Memorandum item:						
Households saving	866.3	937.9	989.5	997.6	1,044.0	1,130.5
(excluding transfers from abroad)						
			(In percent of GDP)			
Domestic saving	24.2	24.3	22.3	20.4	21.2	20.2
Private (including public						
enterprises)	26.4	23.7	24.6	23.3	23.6	20.7
Households	13.6	12.2	11.7	10.9	10.0	10.0
Firms	12.8	11.5	12.9	12.4	13.6	10.7
Public (general government)	-2.2	0.6	-2.4	-2.9	-2.4	-0.5
Foreign saving	3.3	3.1	2.6	4.7	3.5	5.0
Gross saving = gross investment	27.4	27.4	24.9	25.1	24.7	25.2
Gross fixed capital formation	26.6	26.5	24.3	24.3	23.7	24.4
Change in stocks	0.9	0.9	0.6	0.8	1.1	0.8
Memorandum item:						
Households saving	7.7	7.2	7.2	6.9	6.7	6.9
(excluding transfers from abroad)						

Sources: Bank of Portugal; and National Institute of Statistics.

Table 8. Portugal: Origins of Gross Domestic Product

(Real percentage change)

	1991	1992	1993	1994	1995	1996
Agriculture, forestry and fishing	-1.4	-1.0	-6.6	-3.2	0.9	7.2
Manufacturing	0.9	-2.0	-4.4	-0.9	2.6	4.6
Energy	3.0	2.0	3.5	10.1	5.8	6.0
Construction	4.5	2.5	-0.5	1.0	4.8	6.5
Services	4.6	4.4	-0.5	0.5	2.0	2.4
GDP at market prices	2.2	1.7	-1.1	0.5	2.3	3.3

Sources: Bank of Portugal; and National Institute of Statistics.

Table 9. Portugal: Consumer Prices 1/

(Annual average percent change)

	1991 2/	1992	1993	1994	1995	1996
Overall index, excluding rents	11.4	8.9	6.5	5.2	4.1	3.1
Food and beverages	9.9	7.1	2.8	4.8	4.0	2.5
Clothing and footwear	11.9	11.9	7.0	4.1	1.9	1.6
Housing expenditures	12.1	9.6	7.0	3.5	3.3	2.7
Health	14.2	15.5	12.6	9.1	6.2	4.7
Transports and communications	14.4	9.7	11.1	5.9	4.8	4.6
Education,culture and recreation	9.4	9.5	9.0	7.6	6.2	2.7
Tobacco and related expenditures	19.2	19.1	11.5	6.1	6.3	4.8
Other	10.9	8.6	13.2	6.7	5.5	5.2
Housing rents	22.1	15.7	9.5	7.5	5.0	3.0
Overall index, including rents	12.0	9.5	6.8	5.4	4.2	3.1
Administered prices	13.8	8.6	6.8	3.9	3.3	3.3
Nonadministered prices	10.6	9.0	6.5	5.4	4.2	3.1
Memorandum items:						
End of period inflation	9.6	8.4	6.4	4.0	3.4	3.3
Underlying inflation 3/	12.3	11.8	8.9	5.7	5.0	3.9
Import prices	-0.9	-5.4	0.8	3.1	1.7	-0.1
Inflation differential vis-à-vis EU 4/	6.5	4.8	3.2	2.2	1.0	0.6

Source: National Institute of Statistics.

1/ Annual averages.
2/ New CPI series starting January 1991.
3/ Excluding food and beverages, and energy.
4/ EU excluding Portugal.

Table 10. Portugal: Population, Labor Force, Employment, and Unemployment

	1991	1992 1/	1993	1994	1995	1996
			(In thousands)			
Total resident population	9,815	9,345	9,350	9,350	9,357	9,372
Civilian labor force	4,829	4,528	4,504	4,564	4,551	4,583
Total employment	4,631	4,341	4,255	4,252	4,225	4,251
Dependent employment	3,211	3,223	3,132	3,070	3,040	3,027
Fixed term contracts 2/	16.1	12.1	10.9	10.6	11.1	12.5
Unemployment	199	187	248	312	325	332
First employment seekers	41	40	39	52	60	68
New employment seekers	158	147	209	260	266	264
Labor market						
Application for employment						
by unemployed	296.6	339.3	365.1	410.2	451.8	460.2
Unfilled vacancies	8.4	7.0	5.0	5.1	7.3	7.8
Placements	27.5	27.9	28.6	35.07	46.8	46.3
			(In percent)			
Participation rate	49.2	48.5	48.2	48.8	48.6	48.9
Participation rate 15–64 years	70.3	68.4	67.8	67.5	67.2	67.5
Male	80.7	78.7	77.2	76.4	75.4	75.5
Female	60.6	58.9	59.0	59.2	59.5	59.9
Unemployment rate	4.1	4.1	5.5	6.8	7.2	7.3
Male	2.8	3.5	4.7	6.0	6.4	6.5
Female	5.8	4.9	6.5	7.8	8.0	8.2
Duration of unemployment						
Less than 3 months	31.4	35.7	29.4	27.3	22.0	21.9
Between 3 and 12 months	38.5	38.4	41.3	38.5	38.6	36.2
Over 12 months	30.1	25.9	29.3	34.2	39.3	42.0
Memorandum item:						
Unemployment rate in EU-12	8.4	9.8	11.1	11.6	11.2	11.3

Sources: National Institute of Statistics, *Inquerito ao Emprego* ; Bank of Portugal; and
IMF, *World Economic Outlook*.

1/ As a result of methodological changes in the construction of the series, data for 1992 is not strictly comparable to previous years.

2/ In percent of dependent employment.

Table 11. Portugal: Employment by Sector 1/

	1991	1992 2/	1993	1994	1995	1996
	(In thousands)					
Agriculture, forestry, and fishing	799.1	490.1	481.2	486.9	477.5	518.1
Manufacturing and mining industries	1,154.2	1,061.0	1,028.0	1,025.6	988.7	963.0
Electricity, water and gas	45.9	31.1	22.8	54.3	34.6	29.1
Construction	363.6	346.2	339.3	327.9	340.3	343.1
Services	2,268.1	2,412.2	2,372.1	2,367.6	2,384.0	2,397.5
Total	4,630.8	4,340.7	4,253.7	4,251.2	4,225.2	4,250.5
Memorandum items:						
Public sector	828.2	940.4	902.4	...	...	...
General government 3/	691.4	810.8	784.8	793.5	802.2	771.0
Public enterprises	136.8	129.6	115.5	...	...	...
Public sector (percent of total)	17.9	21.7	21.2	...	...	...

Source: National Institute of Statistics, *Inquerito ao Emprego* .
1/ Period average.
2/ As a result of methodological changes in the construction of the series, data for 1992 is not strictly comparable to previous years.
3/ Including education and health services, public and private.

Table 12. Portugal: Wage Developments

	1991	1992	1993	1994	1995	1996
	(Annual nominal percentage change)					
Compensations per employee 1/	14.2	14.1	8.1	5.1	6.2	6.3
idem, excluding general government	11.7	11.9	6.7	5.2	5.0	4.7
Contractual wages						
Agriculture	14.9	11.7	7.6	5.1	4.5	4.4
Industry	14.4	10.7	7.8	5.2	5.1	4.5
Construction	13.5	10.8	6.6	0.0	4.5	4.5
Services 2/	14.5	11.9	7.8	5.1	4.6	4.5
Total, excluding						
General government	14.4	11.2	7.6	5.2	4.8	4.5
Public enterprises	14.5	11.9	6.3	4.2	3.9	4.5
Private sector	14.4	11.1	7.7	5.2	4.8	4.5
Memorandum item:						
Inflation rate (CPI)	11.4	8.9	6.5	5.2	4.1	3.1

Source: Bank of Portugal.
1/ Including employers' social security contributions.
2/ Private sector and public enterprises.

Table 13. Portugal: Labor Costs in Manufacturing

(1990 = 100)

	IPI (1)	Employment (2)	Productivity (3)	Wages (4)	Unit Labor Costs in Escudos (5)	Percent Change in ULC	Unit Labor Costs-Exterior in Escudos (6)	Relative Unit Labor Costs (7)	Percent Change in RULC
1986	82.7	88.7	93.3	59.7	64.0	...	73.5	87.0	...
1987	87.0	92.7	93.9	67.9	72.3	13.0	82.6	87.5	0.5
1988	. 89.2	95.7	93.3	75.9	81.4	12.6	87.5	93.0	6.3
1989	92.3	98.7	93.4	86.0	92.1	13.1	92.4	99.6	7.1
1990	100.0	100.0	100.0	100.0	100.0	8.6	100.0	100.0	0.4
1991	100.7	100.1	100.6	116.4	115.8	15.8	104.2	111.1	11.1
1992	97.2	98.8	98.3	129.9	132.2	14.2	105.2	125.7	13.1
1993	92.3	96.1	96.0	137.2	142.9	0.1	114.6	124.7	-0.7
1994	91.6	95.9	95.4	144.3	151.2	5.8	115.9	130.4	4.6
1995	94.0	92.5	101.6	152.1	149.7	-1.0	113.5	132.0	1.2
1996 1/	98.3	90.0	109.3	159.0	145.5	-2.8	116.2	125.3	-5.1

Source: Bank of Portugal based on the following data:

(1) National Institute of Statistics, Industrial Production Index (manufacturing); adjusted for working days.
(2) National Institute of Statistics.
(3) (1)/(2).
(4) Ministry of Employment and Social Security. Wages in manufacturing.
(5) ULC = (4)/(3).
(6) ULC of main partner countries weighted by manufacturing trade.
(7) (5)/(6).

1/ Provisional.

Table 14. Portugal: General Government Expenditures and Revenues

(In billions of escudos; national accounts basis)

	1991	1992	1993	1994	1995	1996	1997 Budget
Current receipts	4,444.7	5,506.1	5,725.8	5,457.2	6,060.7	6,709.3	7,254.6
Taxes	3,670.3	4,438.0	4,521.9	4,929.9	5,459.9	6,052.4	6,506.8
Direct taxes	2,162.1	2,633.7	2,726.9	2,912.8	3,255.6	3,628.9	3,947.5
Income and property	1,026.7	1,294.1	1,242.8	1,314.7	1,468.8	1,680.5	1,887.9
Social security	1,135.4	1,339.6	1,484.1	1,598.1	1,786.8	1,948.4	2,059.6
Indirect taxes	1,508.2	1,804.3	1,795.0	2,017.1	2,204.3	2,423.5	2,559.3
Other current receipts	774.4	1,068.1	1,203.9	527.3	600.8	656.9	747.8
Current expenditures	4,737.5	5,400.9	6,009.3	5,869.5	6,443.7	6,721.5	7,133.1
Goods and services	1,951.0	2,208.3	2,410.4	2,566.7	2,794.7	3,036.9	3,254.1
Of which: Payroll	1,502.9	1,820.8	1,965.8	2,015.6	2,198.0	2,370.2	2,582.6
Subsidies	153.3	156.9	175.9	102.6	110.1	121.9	108.9
Interest payments	888.6	917.1	837.5	906.2	1,014.5	810.2	814.1
Transfers	1,744.6	2,118.6	2,585.5	2,294.0	2,524.4	2,752.5	2,956.0
Current balance	-292.8	105.2	-283.5	-412.3	-383.0	-12.2	121.5
Capital receipts	304.9	381.2	382.3	342.2	370.9	507.3	561.5
Capital expenditures	692.6	862.7	921.1	811.7	893.8	1,034.5	1,203.3
Investment	382.4	482.1	541.7	549.1	607.5	671.9	775.6
Transfers	310.2	380.6	379.4	262.6	286.3	362.6	427.7
Capital balance	-387.7	-481.5	-538.8	-469.5	-522.9	-527.2	-641.8
Balance excl. net lending	-680.5	-376.3	-822.3	-881.8	-905.9	-539.4	-520.3
Of which: Primary balance	208.1	540.8	15.2	24.4	108.6	270.8	293.8
Net lending	-12.9	24.5	6.8	25.8	43.1	10.9	62.7
Overall balance	-667.6	-400.8	-829.1	-907.6	-949.0	-550.3	-583.0
Memorandum items:							
Total expenditure (exc. net lending)	5,430.1	6,263.6	6,930.4	6,681.2	7,337.5	7,756.0	8,336.4
Of which:							
Total primary expenditures	4,541.5	5,346.5	6,092.9	5,775.0	6,323.0	6,945.8	7,522.3
Current primary expenditures	3,848.9	4,483.8	5,171.8	4,963.3	5,429.2	5,911.3	6,319.0
Total receipts	4,749.6	5,887.3	6,108.1	5,799.4	6,431.6	7,216.6	7,816.1
Borrowing requirement of non-financial public enterprises	154.6	164.4	68.7	51.6	107.1	126.0	...

Source: Ministry of Finance.

Table 15. Portugal: General Government Expenditures and Revenues

(In percent of GDP)

	1991	1992	1993	1994	1995	1996	1997 Budget
Current receipts	39.5	42.5	41.9	37.8	39.1	40.7	41.1
Taxes	32.6	34.3	33.1	34.2	35.2	36.7	36.8
Direct taxes	19.2	20.3	19.9	20.2	21.0	22.0	22.3
Income and property	9.1	10.0	9.1	9.1	9.5	10.2	10.7
Social security	10.1	10.3	10.9	11.1	11.5	11.8	11.7
Indirect taxes	13.4	13.9	13.1	14.0	14.2	14.7	14.5
Other current receipts	6.9	8.2	8.8	3.7	3.9	4.0	4.2
Current expenditures	42.1	41.7	43.9	40.7	41.6	40.8	40.4
Goods and services	17.3	17.1	17.6	17.8	18.0	18.4	18.4
Of which: Payroll	13.4	14.1	14.4	14.0	14.2	14.4	14.6
Subsidies	1.4	1.2	1.3	0.7	0.7	0.7	0.6
Interest payments	7.9	7.1	6.1	6.3	6.5	4.9	4.6
Transfers	15.5	16.4	18.9	15.9	16.3	16.7	16.7
Current balance	-2.6	0.8	-2.1	-2.9	-2.5	-0.1	0.7
Capital receipts	2.7	2.9	2.8	2.4	2.4	3.1	3.2
Capital expenditures	6.2	6.7	6.7	5.6	5.8	6.3	6.8
Investment	3.4	3.7	4.0	3.8	3.9	4.1	4.4
Transfers	2.8	2.9	2.8	1.8	1.8	2.2	2.4
Capital balance	-3.4	-3.7	-3.9	-3.3	-3.4	-3.2	-3.6
Balance excl. net lending	-6.0	-2.9	-6.0	-6.1	-5.8	-3.2	-2.9
Of which: Primary balance	1.9	4.2	0.1	0.2	0.7	1.6	1.7
Net lending	-0.1	0.2	0.0	0.2	0.3	0.1	0.4
Overall balance	-5.9	-3.1	-6.1	-6.3	-6.1	-3.3	-3.3
Memorandum items:							
Total expenditure (exc. net lending)	48.3	48.4	50.7	46.3	47.3	47.1	47.2
Of which:							
Total primary expenditures	40.4	41.3	44.6	40.0	40.8	42.2	42.6
Current primary expenditures	34.2	34.6	37.8	34.4	35.0	35.9	35.8
Total receipts	42.2	45.5	44.7	40.2	41.5	43.8	44.2
Borrowing requirement of nonfinancial public enterprises	1.4	1.3	0.5	0.4	0.7	0.8	...

Sources: Ministry of Finance and National Institute of Statistics.

Table 16. Portugal : General Government Accounts, 1994

(In billions of escudos, national accounts basis)

	Central Government		Local Administration	Social Security	Total Consolidated
	State	Autonomous Services and Funds			
Current revenue	3,262.0	982.2	480.5	1,866.8	5,457.2
Taxes on income and property	1,205.7	0.0	109.0	0.0	1,314.7
Social security contributions	0.0	0.0	0.0	1,598.1	1,598.1
Taxes on goods and services	1,805.7	45.6	151.3	14.5	2,017.1
Nontax revenue	250.6	936.6	220.2	254.2	527.3
Of which: From other general government sectors	6.4	782.4	128.6	216.9	0.0
Current expenditures	3,695.8	979.1	474.9	1,854.1	5,869.5
Goods and services	1,429.4	673.5	395.6	68.2	2,566.7
Of which: Salaries	1,223.6	492.0	257.8	42.2	2,015.6
Subsidies	83.2	11.5	7.9	...	102.6
Interest payments	864.0	5.9	34.8	1.5	906.2
Other current transfers	1,319.2	288.2	36.6	1,784.4	2,294.0
Of which: From other general government sectors	1,069.5	19.5	1.7	43.7	0.0
Current balance	-433.8	3.1	5.6	12.7	-412.4
Capital revenue	41.2	408.8	206.5	63.4	342.2
Of which: From other general government sectors	3.0	251.3	119.7	3.7	0.0
Capital expenditure	452.0	371.3	247.5	118.7	811.7
Fixed investment	108.1	204.1	224.4	12.5	549.1
Capital transfers	343.9	167.2	23.1	106.2	262.6
Of which: To other general government sectors	308.7	9.1	0.0	60.0	0.0
Capital balance	-410.8	37.5	-41.0	-55.3	-469.6
Overall balance	-844.6	40.6	-35.4	-42.6	-882.0
Primary balance	19.4	46.5	-0.6	-41.1	24.2
Net lending	11.0	12.2	2.7	-0.1	25.8
Overall balance including net lending	-855.6	28.4	-38.1	-42.5	-907.8
In percent of GDP	-5.9	0.2	-0.3	-0.3	-6.3

Source: Ministry of Finance.

Table 17. Portugal : General Government Accounts, 1995

(In billions of escudos, national accounts basis)

| | Central Government | | | | |
	State	Autonomous Services and Funds	Local Administration	Social Security	Total Consolidated
Current revenue	3,556.7	1,094.5	544.7	2,050.9	6,060.7
Taxes on income and property	1,337.9	0.0	130.9	0.0	1,468.8
Social security contributions	0.0	0.0	0.0	1,786.8	1,786.8
Taxes on goods and services	1,916.7	49.3	168.9	69.4	2,204.3
Nontax revenue	302.1	1,045.2	244.9	194.7	600.8
Of which: From other general					
government sectors	5.0	883.8	138.8	158.5	0.0
Current expenditures	3,935.0	1,074.9	520.6	2,099.4	6,443.7
Goods and services	1,555.6	735.9	428.9	74.3	2,794.7
Of which: Salaries	1,347.3	526.2	278.8	45.7	2,198.0
Subsidies	87.8	13.9	8.4	0.0	110.1
Interest payments	954.5	6.4	37.2	16.4	1,014.5
Other current transfers	1,337.1	318.7	46.1	2,008.7	2,524.4
Of which: From other general					
government sectors	1119.1	11.9	1.0	54.2	0.0
Current balance	-378.3	19.6	24.1	-48.5	-383.1
Capital revenue	46.9	417.2	221.0	90.5	370.9
Of which: From other general					
government sectors	2.1	269.0	129.8	3.8	0.0
Capital expenditure	494.7	422.7	270.4	110.8	893.8
Fixed investment	129.7	222.8	242.1	12.9	607.5
Capital transfers	365.0	199.9	28.3	97.9	286.3
Of which: To other general					
government sectors	342.5	9.7	0.1	52.5	0.0
Capital balance	-447.8	-5.5	-49.4	-20.3	-523.0
Overall balance	-826.1	14.1	-25.3	-68.8	-906.1
Primary balance	128.4	20.5	11.9	-52.4	108.4
Net lending	205.7	14.2	3.2	-180.0	43.1
Overall balance including net lending	-1031.8	-0.1	-28.5	111.2	-949.2
In percent of GDP	-6.7	0.0	-0.2	0.7	-6.1

Source: Ministry of Finance.

Table 18. Portugal : General Government Accounts, 1996

(In billions of escudos, national accounts basis)

| | Central Government | | | | |
	State	Autonomous Services and Funds	Local Administration	Social Security	Total Consolidat
Current revenue	3,945.0	1,208.8	604.3	2,411.2	6,709.3
Taxes on income and property	1,537.2	0.0	143.3	0.0	1,680.5
Social security contributions	0.0	0.0	0.0	1,948.4	1,948.4
Taxes on goods and services	2,091.9	54.0	183.0	94.6	2,423.5
Nontax revenue	315.9	1,154.8	278.0	368.2	656.9
Of which: From other general					
government sectors	5.4	966.5	158.5	329.6	0.0
Current expenditures	4,157.1	1,204.1	561.8	2,258.3	6,721.5
Goods and services	1,682.1	810.8	466.3	77.7	3,036.9
Of which: Salaries	1452.4	569.9	300.1	47.8	2,370.2
Subsidies	96.9	16.3	8.7	0.0	121.9
Interest payments	769.8	5.4	34.3	0.7	810.2
Other current transfers	1,608.3	371.6	52.5	2,179.9	2,752.5
Of which: From other general					
government sectors	1375.3	21.6	0.9	62.0	0.0
Current balance	-212.1	4.7	42.5	152.9	-12.0
Capital revenue	52.1	517.3	248.1	137.8	507.3
Of which: From other general					
government sectors	3.9	294.0	146.4	3.7	0.0
Capital expenditure	524.5	498.5	320.9	138.6	1,034.5
Fixed investment	124.0	255.1	281.4	11.4	671.9
Capital transfers	400.5	243.4	39.5	127.2	362.6
Of which: To other general					
government sectors	375.7	7.5	0.7	64.1	0.0
Capital balance	-472.4	18.8	-72.8	-0.8	-527.2
Overall balance	-684.5	23.5	-30.3	152.1	-539.2
Primary balance	85.3	28.9	4.0	152.8	271.0
Net lending	4.3	3.4	3.2	0.0	10.9
Overall balance including net lending	-688.8	20.1	-33.5	152.1	-550.1
In percent of GDP	-4.2	0.1	-0.2	0.9	-3.2

Source: Ministry of Finance.

Table 19. Portugal : General Government Accounts, 1997 (Budget)

(In billions of escudos, national accounts basis)

	Central Government				
		Autonomous			
		Services	Local	Social	Total
	State	and Funds	Administration	Security	Consolidated
Current revenue	4,328.6	1,279.5	654.6	2,534.5	7,254.6
Taxes on income and property	1,731.3	0.0	156.6	0.0	1,887.9
Social security contributions	0.0	0.0	0.0	2,059.6	2,059.6
Taxes on goods and services	2,215.8	54.2	201.5	87.8	2,559.3
Nontax revenue	381.5	1,225.3	296.5	387.1	747.8
Of which: From other general					
government sectors	7.1	1,007.5	172.4	355.6	0.0
Current expenditures	4,383.2	1,251.9	592.6	2,448.0	7,133.1
Goods and services	1,798.8	874.5	492.1	88.7	3,254.1
Of which: Salaries	1582.3	623.9	321.4	55	2,582.6
Subsidies	82.1	18.1	8.7	0.0	108.9
Interest payments	767.9	5.3	37.9	3.0	814.1
Other current transfers	1,734.4	354.0	53.9	2,356.3	2,956.0
Of which: From other general					
government sectors	1,464.8	15.9	0.6	61.3	0.0
Current balance	-54.6	27.6	62.0	86.5	121.5
Capital revenue	69.8	563.5	254.3	162.5	561.5
Of which: From other general					
government sectors	7.4	318.9	157.5	4.8	0.0
Capital expenditure	591 2	588.5	322.7	189.4	1,203.3
Fixed investment	167.1	310.2	282.3	16.0	775.6
Capital transfers	424.1	278.3	40.4	173.4	427.7
Of which: To other general					
government sectors	398.9	11.2	1.6	76.8	0.0
Capital balance	-521.4	-25.0	-68.4	-26.9	-641.7
Overall balance	-576.0	2.6	-6.4	59.6	-520.2
Primary balance	191.9	7.9	31.5	62.6	293.9
Net lending	19.8	29.5	3.5	9.9	62.7
Overall balance including net lending .	-595.8	-26.9	-9.9	49.7	-582.9
In percent of GDP	-3.4	-0.2	-0.1	0.3	-3.3

Source: Ministry of Finance.

Table 20. Portugal: General Government Financing

	1992	1993	1994	1995	1996
(In billions of Escudos)					
General government deficit	376.3	822.3	881.8	905.9	539.4
Privatization receipts used for debt reduction	-199 9	-51.3	-30.0	-122.8	-292.0
Adjustment for complementary period	0.4	-35.8	-81.1	-152.5	143.2
Debt assumptions	98.0	95.4	221.6	140.0	186.8
Other adjustments	138.1	104.1	-35.2	1.2	77.4
Public sector borrowing requirement	412.9	934.7	957.1	771.8	654.8
Domestic credit	802.6	416.0	437.6	402.9	166.4
Bank credit, net	397.8	168.7	490.1	-314.4	-199.4
Bank of Portugal	306.6	10.9	6.0	-204.6	149.6
Deposit money banks	91.2	157.8	484.1	-109.8	-349.0
TB and CLIP held by the public	-84.5	-103.3	-1.6	110.7	-10.5
Non-bank credit	489.3	350.6	-50.9	606 6	376.3
Of which: saving certificates 1/	251.8	199.0	95.0	151.4	127.4
Foreign credit, net	-2.5	316.4	402.6	513.7	189.8
Foreign holdings of securitized debt	-413.9	250.7	62.7	-150.9	259.2
Net foreign assets of the Treasury 2/	1.7	-5.7	36.8	-6.9	-16.7
Errors and omissions	25.0	-42.7	17.4	13.0	56.1
(In percent of GDP)					
General government deficit	2.9	6.0	6.1	5.8	3.3
Privatization receipts used for debt reduction	-1.5	-0.4	-0.2	-0.8	-1.8
Adjustment for complementary period	0.0	-0.3	-0.6	-1.0	0.9
Debt assumptions	0.8	0.7	1.5	0.9	1.1
Other adjustments	1.1	0.8	-0.2	0.0	0.5
Public sector borrowing requirement	3.2	6.8	6.6	5.0	4.0
Domestic credit	6.2	3.0	3.0	2.6	1.0
Bank credit, net	3.1	1.2	3.4	-2.0	-1.2
Bank of Portugal	2.4	0.1	0.0	-1.3	0.9
Deposit money banks	0.7	1.2	3.4	-0.7	-2.1
TB and CLIP held by the public	-0.7	-0.8	0.0	0.7	-0.1
Non-bank credit	3.8	2.6	-0.4	3.9	2.3
Of which: saving certificates 1/	1.9	1.5	0.7	1.0	0.8
Foreign credit, net	0.0	2.3	2.8	3.3	1.2
Foreign holdings of securitized debt	-3.2	1.8	0.4	-1.0	1.6
Net foreign assets of the Treasury 2/	0.0	0.0	0.3	0.0	-0.1
Errors and omissions	0.2	-0.3	0.1	0.1	0.3

Sources: Bank of Portugal, Annual Report, 1996; and staff estimates.

1/ Credit net of amortization and interest paid.
2/ Increase (-), decrease (+).

Table 21. Portugal: State Tax Revenue 1/

	1991	1992	1993	1994	1995	1996	1997 Budget
			(In billions of escudos)				
Direct taxes	941.0	1,174.8	1,118.4	1,190.2	1,323.7	1,524.2	1,710.3
General income tax	898.1	1,160.0	1,105.4	1,175.3	1,309.9	1,510.8	1,697.1
Personal	607.0	811.6	826.3	864.9	919.8	1,022.7	1,106.6
Corporate	291.1	348.4	279.1	310.4	390.1	488.1	590.5
Other	42.9	14.8	13.0	14.9	13.8	13.4	13.2
Indirect taxes	1,354.9	1,670.7	1,667.8	1,970.2	2,073.3	2,137.9	2,316.7
Value-added tax 2/	636.6	832.0	797.3	1,038.9	1,124.9	1,136.6	1,264.2
Tax on petroleum products	309.4	362.5	369.6	399.1	427.9	448.3	480.6
Stamp tax	186.5	213.9	224.7	214.9	187.2	184.4	173.3
Tobacco tax	86.5	108.7	132.3	141.5	151.0	161.0	175 6
Motor vehicle tax	67.0	100.3	99.5	121.1	132.6	157.9	168.9
Alcohol and beer tax	18.6	24.2	24.6	29.2	30.7	31.2	31.7
Other taxes	50.3	29.1	19.8	25.5	19.0	18.5	22.4
Total	2,295.9	2,845.5	2,786.2	3,160.4	3,397 0	3,662.1	4,027.0
			(In percent of GDP)				
Direct taxes	8.4	9.1	8.2	8.2	8.5	9.3	9.7
General income tax	8.0	9.0	8.1	8.1	8.4	9.2	9.6
Personal	5.4	6.3	6.0	6.0	5.9	6.2	6.3
Corporate	2.6	2.7	2.0	2.2	2.5	3.0	3.3
Other	0.4	0.1	0.1	0.1	0.1	0.1	0.1
Indirect taxes	12.0	12.9	12.2	13.7	13.4	13.0	13.1
Value-added tax 2/	5.7	6.4	5.8	7.2	7.3	6.9	7.2
Tax on petroleum products	2.8	2.8	2.7	2.8	2.8	2.7	2.7
Stamp tax	1.7	1.7	1.6	1.5	1.2	1.1	1.0
Tobacco tax	0.8	0.8	1.0	1.0	1.0	1.0	1.0
Motor vehicle tax	0.6	0.8	0.7	0.8	0.9	1.0	1.0
Alcohol and beer tax	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other taxes	0.4	0 2	0.1	0.2	0.1	0.1	0.1
Total	20.4	22.0	20.4	21.9	21.9	22.2	22.8

Source: Ministry of Finance and INE.

1/ State tax revenues on a public account basis.
2/ It excludes Esc 45 billion of VAT revenues that accrue to social security in 1995 and ESC 77.7 billion in 1996 and Esc 72.4 billion in 1997

Table 22. Portugal: Social Security Accounts 1/

(In percent of GDP)

	1991	1992	1993	1994	1995	1996	1997 Budget
Current revenues	8.5	8.4	9.4	9.3	10.3	10.1	9.9
Contributions	7.6	7.4	7.4	7.4	7.9	7.4	7.3
Budget transfers 2/	0.6	0.6	1.5	1.5	1.1	2.0	2.1
Other revenues	0.3	0.4	0.5	0.4	1.3	0.8	0.6
Current expenditures	8.2	8.3	8.9	9.2	9.4	9.4	9.4
Pensions	5.6	5.6	6.0	6.1	6.2	6.3	6.2
Unemployment benefits	0.4	0.5	0.8	0.9	0.9	0.8	0.8
Sickness benefits	0.6	0.6	0.5	0.5	0.6	0.6	0.5
Minimum guaranteed income	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Other	1.6	1.6	1.6	1.6	1.7	1.6	1.7
Current transfers	0.4	0.3	0.2	0.3	0.4	0.4	0.4
Capital revenues	0.5	1.0	1.3	1.4	0.6	0.9	0.9
Capital expenditures	0.6	0.9	1.5	0.9	0.7	1.1	1.1
Overall balance	-0.2	-0.1	0.0	0.3	0.3	0.1	0.0
Current balance	-0.1	-0.2	0.3	-0.2	0.5	0.3	0.2
Capital balance	-0.2	0.1	-0.2	0.6	-0.2	-0.2	-0.2

Sources: Ministry of Employment and Social Security, Ministry of Finance, and National Institute of Statistics.

1/ Private sector general system, cash basis.
2/ Including all state budget transfers.

Table 23. Portugal: Public Transfers Between Portugal and the EU 1/

(In billions of escudos)

	1991	1992	1993	1994	1995	1996
A. From the EU to Portugal	300.8	557.4	619.5	507.9	715.1	688.0
(In percent of GDP)	2.7	4.3	4.5	3.5	4.6	4.2
Structural funds	215.2	455.7	500.7	326.9	464.7	495.2
(In percent of GDP)	1.9	3.5	3.7	2.3	3.0	3.0
(In percent of total investment)	7.0	12.9	14.7	9.0	12.1	11.9
ERDF	147.3	275.5	286.0	220.9	299.2	304.2
ESF	26.6	115.9	152.8	53.7	108.7	127.9
EAGGF-Guidance 2/	41.3	64.3	61.9	52.3	56.8	63.1
PEDIP	20.3	21.2	10.8	5.6	0.0	0.0
Cohesion Fund	0.0	0.0	15.7	33.7	82.5	37.6
EAGGF-Guarantee 3/	56.6	74.4	86.4	139.7	138.5	126.4
Other 4/	9.1	6.1	5.9	2.0	29.4	16.9
B. From Portugal to the EU	130.3	146.2	162.8	247.3	196.1	182.2
(In percent of GDP)	1.2	1.1	1.2	1.7	1.3	1.1
Customs and agricultural duties	37.7	36.6	35.3	39.9	40.2	26.6
Other own resources	88.8	108.6	127.5	206.9	155.6	155.7
Other	3.8	1.0	0.0	0.5	0.3	0.0
C. Net transfers (A-B)	170.5	411.2	456.7	260.6	519.0	505.8
(In percent of GPD)	1.5	3.2	3.3	1.8	3.4	3.1

Sources: Ministry of Finance; and INE.

1/ On a cash basis.
2/ Mostly under PEDAP, Specific Program for Portuguese Agriculture.
3/ Mostly price subsidies.
4/ Includes reimbursements and adjustments.

Acronyms:

EAGGF: European Guidance and Guarantee Fund
ERF: European Regional Fund
ESF: European Social Fund
PEDIP: Specific Program for the Development of Portuguese Industry

Table 24. Portugal: Direct Public Debt

	1991	1992	1993	1994	1995	1996
(In billions of Escudos)						
Direct public debt 1/	6,695.6	7,231.8	8,440.8	9,476.7	10,523.2	11,157.4
Domestic debt	6,160.1	6,688.3	7,448.3	8,105.0	8,685.5	9,183.3
External debt	535.5	543.5	992.5	1,371.7	1,837.7	1,974.1
Total government debt 2/	7,741.5	7,548.8	8,497.1	9331	10,333.8	10,870.3
(In percent of GDP)						
Direct public debt 1/	59.5	55.8	61.7	65.7	67.9	67.7
Domestic debt	54.8	51.7	54.5	56.2	56.0	55.7
External debt	4.8	4.2	7.3	9.5	11.9	12.0
Total government debt 2/	68.8	58.3	62.1	64.6	66.6	66.0
(In percent of direct public debt)						
Direct public debt 1/	100.0	100.0	100.0	100.0	100.0	100.0
Domestic debt	92.0	92.5	88.2	85.5	82.5	82.3
External debt	8.0	7.5	11.8	14.5	17.5	17.7

Source: Ministry of Finance and INE

1/ Gross securitized debt of the State.
2/ Government debt in accordance with Maastricht Treaty criteria.

Table 25. Portugal: Interest Rates on Direct Public Debt

	1991	1992	1993	1995	1996	1997 Projected
(In billions of escudos; national accounts basis)						
Interest payments	816.3	999.8	888.4	792.0	730.8	682.4
Domestic debt	754.9	963.5	848.6	694.2	619.2	542.1
External debt	61.4	36.3	39.8	97.8	111.6	140.3
(In percent of GDP)						
Interest payments	7.3	7.7	6.5	5.1	4.4	3.9
Domestic debt	6.7	7.4	6.2	4.5	3.8	3.1
External debt	0.5	0.3	0.3	0.6	0.7	0.8
(In percent)						
Implicit nominal interest rate						
Domestic debt	15.2	17.3	14.6	10.5	9.0	7.7
External debt	7.1	6.8	5.2	6.1	5.9	6.8
Implicit real interest rate 1/						
Domestic debt	0.3	3.6	7.3	5.2	6.0	4.7
External debt	-6.7	-5.7	-1.5	1.0	3.0	3.8

Source: Ministry of Finance and INE.

1/ Implicit nominal interest rate deflated by the GDP deflator.

Table 26. Portugal: Privatization Revenues

(In billions of escudos)

	1989	1990	1991	1992	1993	1994	1995	1996	1997 Budget
Total privatization revenues	78.9	69.6	173.0	313.5	80.4	188.1	363.5	464.4	500.0
In percent of GDP	1.0	0.7	1.5	2.4	0.6	1.3	2.1	2.8	2.8
Fondo de Regularicacao da Divida Publica, FRDP Receipts from privatization	57.1	30.7	108.8	221.0	66.2	93.8	144.1	381.1	410.0
Privatization receipts used for debt reduction 1/	44.8	71.7	73.1	199.9	51.3	30.0	122.8	292.0	328.8
In percent of GDP	0.5	0.7	0.6	1.5	0.4	0.2	0.8	1.8	1.9
Privatization receipts used for capital injections 2/	11.7	25.5	14.4	26.9	31.9	43.7	45.3	68.6	88.0
Balance for next period	0.6	-66.5	20.7	-5.8	-17.0	20.1	-24.0	20.5	-6.8

Sources: Ministry of Finance; and INE.

1/ These amounts are shown as a financing item of the general government.
2/ These amounts do not appear in the enlarged public sector accounts because the transactions cancel out:
an expenditure of the FRDP (an off-budget autonomous fund) and a capital increase in the affected public enterprises.

Table 27. Portugal: Major Privatizations, 1989-97

Enterprise	Tranche	Date	Method	Percentage Sold	Total Revenue		Sector
					Esc, billions	US$, millions	
Unicer	1st	4/26/89	Public offer	49.00	9.4	60.44	Brewery
Banco Totta & Açores	1st	7/10/89	Public offer	49.00	28.6	182.72	Banking
Aliança Seguradora	1st	10/2/89	Public offer	49.00	7.1	44.74	Insurance
Tranquilidade	1st	12/4/89	Public offer	49.00	25.8	166 04	Insurance
Unicer	2nd	6/28/90	Public offer	51.00	13.3	90.74	Brewery
Banco Totta & Açores	2nd	7/31/90	Public offer	31 00	22.4	159.03	Banking
Tranquilidade	2nd	10/9/90	Public offer	51 00	18.9	140.49	Insurance
Centralcer		11/12/90	Public offer	100.00	34 6	265.40	Brewery
Banco Português do Atlântico	1st	12/11/90	Public offer	33.00	49.8	381 52	Banking
Sociedade Financeira Portuguesa		5/6/91	Public offer	100.00	16.1	107.34	Finance
Aliança Seguradora	2nd	5/29/91	Public offer	51 00	6.8	45.94	Insurance
Bonança	1st	6/25/91	Public offer	60 00	18 8	120.43	Insurance
Banco Espírito Santo & C.L.	1st	7/9/91	Public offer	40.00	60.9	384.78	Banking
Banco Fonsecas & Burnay	1st	8/27/91	Public tender	80.00	36.1	240.85	Banking
Banco Espírito Santo & C.L.	2nd	2/25/92	Public offer	60 00	89 0	627 54	Banking
Mundial Confiança		4/14/92	Public offer	100 00	33 4	235.77	Insurance
Banco Português do Atlântico	2nd	5/25/92	Public offer	17.64	50.6	377.55	Banking
Petrogal	1st	6/4/92	Public tender	25 00	40 8	305 69	Oil
Banco Fonsecas & Burnay	2nd	7/20/92	Public offer	20.00	9.0	72.22	Banking
Império		11/17/92	Public offer	100.00	25.5	179.76	Insurance
Banif		11/23/92	Public offer	16 01	5.3	37 01	Banking
Crédito Predial Português		12/2/92	Public offer	100.00	40 8	288.41	Banking
Bonança	2nd	12/9/92	Public offer	15.00	4.3	30 75	Insurance
União de Bancos Portugueses	1st	2/3/93	Public offer	61 11	24 4	163 99	Banking
Banco Português do Atlântico	3rd	7/7/93	Public offer	17 50	32 4	200 26	Banking
Banco Português do Atlântico	4th	3/25/94	Direct sale	7.50	15.4	89.50	Banking
Cimentos de Maceira e Pataias	1st	5/31/94	Public tender	80.00	31 8	186.56	Cement
SECIL	1st	5/31/94	Public tender	51.00	31.2	182.84	Cement
CIMPOR	1st	7/4/94	Public offer	20.00	39.6	240 98	Cement
Banco Pinto & Sotto Mayor	1st	11/16/94	Public tender	80 00	37 3	235 05	Banking
Bonança	3rd	12/12/94	Public offer	25.00	6.6	40.88	Insurance
Banco de Fomento e Exterior	1st	12/27/94	Public offer	19 50	19 4	119.69	Banking
Banco Português do Atlântico	5th	3/24/95	Direct sale	24 40	75 1	507 66	Banking
Banco Pinto & Sotto Mayor	2nd	3/28/95	Public offer	20.00	6.8	45 93	Banking
Cimentos de Maceira e Pataias	2nd	5/29/95	Public offer	20.00	7.8	53.22	Cement
SECIL	2nd	5/29/95	Public offer	7 90	4.7	32 47	Cement
Portugal Telecom	1st	6/1/95	Public offer	14.49	74 9	495.71	Telecom.
Portugal Telecom	1st	6/1/95	Direct sale	12 77	67 9	449.85	Telecom
Portucel Industrial	1st	6/27/95	Public offer	12 10	10 4	71 02	Pulp & Paper
Portucel Industrial	1st	6/27/95	Direct sale	32.20	29.1	199.49	Pulp & Paper
União de Bancos Portugueses	2nd	7/11/95	Direct sale	20 00	7.5	50.90	Banking
Petrogal	2nd	7/31/95	Public tender	20.00	40 0	277 11	Oil
Siderurgia Nacional - Planos		8/31/95	Public tender	90 00	5.4	35 38	Steel
Siderurgia Nacional - Longos		9/28/95	Public tender	80.00	3.7	25 19	Steel
Companhia Nacional Petroquímica	1st	4/24/96	Direct sale	99 00	12 7	81.33	Chemical
Portugal Telecom	2nd	6/11/96	Public offer	6 66	42 7	269.62	Telecom.
Portugal Telecom	2nd	6/11/96	Priv placement	15 10	103 7	655.32	Telecom.
Banco de Fomento e Exterior	2nd	8/28/96	Public tender	65 00	136 0	895 91	Banking
CIMPOR	2nd	10/15/96	Public offer	20 47	50 2	323 17	Cement
CIMPOR	2nd	10/15/96	Priv placement	24 53	65.3	420 16	Cement
Companhia Nacional Petroquímica	2nd	10/18/96	Public offer	1 00	0 1	0 82	Chemical
Banco Totta & Açores	3rd	11/19/96	Public offer	3.06	4.5	29 53	Banking
Banco Totta & Açores	3rd	11/19/96	Priv. placement	10 15	16 0	105 41	Banking
Tabaqueira	1st	12/19/96	Public tender	65.00	33.2	211 19	Tobacco
EDP	1st	6/18/97	Public offer	16.23	211 1	1,210 85	Electrical utility
EDP	1st	6/18/97	Priv placement	13.36	180.4	1,034 76	Electrical utility

Source: Ministry of Finance

Table 28. Portugal: Timetable for Privatizations, 1997–98

Enterprise	Percent to Privatize	Method
1997		
BFE - Bank	3.5	Public offer
Brisa - Highway Co.	35	Public offer
Quimigal - Chemical Co.	90	Public tender
SETENAVE - Shipbuilding Co.	...	Direct sale
1998		
EDP - Electricity Co.	20	Public offer
CIMPOR - Cement Co.	15	Public offer
ANA - Airport Management Co.	25	Public offer
Petrogal - Oil Co.	20	Public offer
Brisa - Highway Co.	20	Public offer
Portucel - Pulp and paper Co.	50	Public offer
TAP - National airline	...	Direct sale

Source: Ministry of Finance.

Table 29. Portugal: Monetary Survey 1/

(In billions of escudos; end-of-period)

		1991	1992	1993	1994	1995	1996
I.	Net foreign assets	3,173.6	3,529.2	4,454.3	3,866.0	2,837.2	2,078.5
	Bank of Portugal	3,445.8	3,563.0	3,700.7	3,273.8	3,132.4	3,240.5
	Other monetary institutions	-272.2	-33.9	753.6	592.2	-295.3	-1,161.9
II.	Total domestic credit	9,262.1	10,768.4	11,710.4	13,099.4	14,662.9	16,330.9
	Net credit to general government	2,914.0	3,123.5	3,195.8	3,672.0	3,472.3	3,248.3
	Credit to the private sector 2/	6,348.1	7,644.9	8,514.6	9,427.5	11,190.6	13,082.6
	Credit to nonfinancial firms and individuals	5,848.3	6,852.5	7,641.7	8,345.7	9,623.1	10,999.2
	Nonfinancial public firms	787.3	703.8	696.9	718.3	679.8	688.6
	Other nonfinancial firms and individuals	5,060.9	6,148.7	6,944.8	7,627.4	8,943.3	10,310.7
	Credit to nonmonetary financial institutions 3/	499.9	792.4	872.9	1,081.8	1,567.5	2,083.4
III.	Other items net	-1,792.9	-1,941.9	-2,665.2	-2,288.7	-1,533.8	-1,618.0
	Capital and reserves	-1,836.1	-2,129.7	-2,745.5	-2,877.5	-2,804.5	-3,092.6
	Nonmonetary assets	-163.7	-186.5	-290.9	-283.5	-223.2	-359.9
	Sundry items net	206.9	374.4	371.1	872.3	1,493.8	1,834.6
Liquid assets held by the public (L) = I+II+III		10,642.9	12,355.7	13,499.4	14,676.8	15,966.2	16,791.5
	Liquid assets held by nonfinancial residents (L-)	8,184.3	9,279.5	9,852.5	10,783.7	11,664.4	12,712.5
	Broad money (M2-)	7,801.6	9,106.5	9,758.9	10,654.5	11,522.1	12,589.7
	Narrow money (M1-)	2,704.7	3,163.7	3,392.6	3,641.4	3,972.2	4,398.0
	Currency in circulation	683.1	708.2	752.9	795.8	841.0	880.9
	Demand deposits	2,021.6	2,455.5	2,639.7	2,845.6	3,131.2	3,517.0
	Quasi-money	5,096.9	5,942.8	6,366.3	7,013.1	7,549.9	8,191.7
	Time-deposits	4,506.8	5,699.1	6,232.2	6,897.9	7,400.5	7,997.3
	Certificates of deposits	270.6	119.7	65.1	31.8	30.2	38.1
	Cash certificates	48.3	41.2	44.0	12.4	4.4	1.7
	Repurchase agreements of securities	271.2	82.8	25.0	71.0	114.7	154.6
	Treasury-bills and CLIPs	382.8	172.9	93.5	129.2	142.4	122.8
	Liquid assets held by nonmonetary financial institutions 3/	516.3	824.3	1,078.0	1,217.1	1,632.6	1,363.2
	Deposits and other liquid assets held by emigrants	1,942.3	2,251.9	2,569.0	2,676.0	2,669.2	2,715.8

Source: Bank of Portugal.

1/ Figures adjusted for the abnormal component of checks in process of collection in 1986-1991.
2/ Includes nonfinancial public firms.
3/ Includes credit to small savings banks and agricultural credit cooperatives.

Table 30. Portugal: Credit and Monetary Aggregates 1/

(Percentage change over previous year; end-of-period)

	1991	1992	1993	1994	1995	1996
Credit aggregates						
Total domestic credit	18.6	16.3	8.7	11.9	11.9	11.4
Net credit to the general government	4.1	7.2	2.3	14.9	-5.4	-6.5
Credit to the private sector 2/	26.7	20.4	11.4	10.7	18.7	16.9
Credit to nonfinancial firms						
and individuals	23.8	17.2	11.5	9.2	15.3	14.3
Nonfinancial public firms	13.6	-10.6	-1.0	3.1	-5.4	1.3
Other nonfinancial firms and individuals	25.6	21.5	12.9	9.8	17.3	15.3
Credit to nonmonetary financial						
institutions 3/	73.4	58.5	10.2	23.9	44.9	32.9
Monetary aggregates						
Liquid assets held by the public (L)	19.8	16.1	9.3	8.7	8.8	5.2
Liquid assets held by nonfinancial						
Residents (L-)	18.5	13.4	6.2	9.5	8.2	9.0
Broad money (M2-)	25.2	16.7	7.2	9.2	8.1	9.3
Narrow money (M1-)	15.0	17.0	7.2	9.2	8.1	9.3
Currency in circulation	9.5	3.7	6.3	5.7	5.7	4.8
Demand deposits	17.0	21.5	7.5	7.8	10.0	12.3
Quasi-money	31.4	16.6	7.1	10.2	7.7	8.5
Time deposits	28.4	26.5	9.4	10.7	7.3	8.1
Certificates of deposit	24.1	-55.8	-45.6	-51.2	-4.9	25.9
Cash certificates	17.3	-14.8	6.7	-71.7	-64.3	-61.8
Repurchase agreements of securities	150.5	-69.5	-69.8	183.8	61.5	34.8
Treasury bills and CLIPS	-43.4	-54.8	-45.9	38.1	10.2	-13.8
Liquid assets held by nonmonetary						
financial institutions 3/	128.4	59.7	30.8	12.9	34.1	-16.5
Deposits and other liquid assets held by						
immigrants	10.9	15.9	14.1	4.2	-0.3	1.7
Memorandum items:						
Inflation (CPI)	11.4	8.9	6.5	5.2	4.1	3.1
GDP deflator	14.8	13.1	6.8	5.1	5.0	...

Source: Bank of Portugal

1/ Figures adjusted for the abnormal component of checks in process of collection.
2/ Private sector is defined to include nonfinancial public firms.
3/ Includes credit to small savings banks and agricultural credit cooperatives.

Table 31. Portugal: Sources and Uses of Base Money

	1991	1992	1993	1994	1995	1996
	(Stocks in billions of escudos; end-of-period)					
Sources						
Net foreign assets, Bank of Portugal	3,445.8	3,563.0	3,700.7	3,273.8	3,132.4	3,240.5
Net credit to general government	-544.4	-237.8	-225.9	-220.7	-425.4	-275.8
Credit to financial institutions	160.1	8.8	272.9	576.1	639.9	269.9
Total A	3,061.5	3,334.0	3,747.7	3,629.1	3,347.0	3,234.6
Other compulsory deposits	191.3	0.4	0.0	0.0	0.0	0.0
Operations absorbing liquidity 1/	125.4	381.4	23.8	1,854.5	1,855.2	1,543.6
Capital and reserves, counterpart to foreign						
exchange fluctuations, sundry items (net)	229.9	170.7	692.7	525.0	273.5	336.4
Total B	546.6	552.5	716.5	2,379.5	2,128.7	1,880.0
Monetary base (= Total A - Total B)	2,515.0	2,781.7	3,030.4	1,249.7	1,218.3	1,354.6
Uses						
Currency (notes and coins)	765.3	797.8	846.2	881.1	935.8	983.7
Reserves and other noncompulsory deposits 2/	1,749.7	1,983.9	2,184.2	368.6	282.5	370.9
	(In percent of monetary base)					
Sources						
Net foreign assets, Bank of Portugal	137.0	128.1	122.1	262.0	257.1	239.2
Net credit to general government	-21.6	-8.5	-7.5	-17.7	-34.9	-20.4
Credit to financial institutions	6.4	0.3	9.0	46.1	52.5	19.9
Total A	121.7	119.9	123.7	290.4	274.7	238.8
Other compulsory deposits	7.6	0.0	0.0	0.0	0.0	0.0
Operations absorbing liquidity 1/	5.0	13.7	0.8	148.4	152.3	114.0
Capital and reserves, counterpart to foreign						
exchange fluctuations, sundry items (net)	9.1	6.1	22.9	42.0	22.4	24.8
Total B	21.7	19.9	23.6	190.4	174.7	138.8
Monetary base (= Total A - Total B)	100.0	100.0	100.0	100.0	100.0	100.0
Uses						
Currency (notes and coins)	30.4	28.7	27.9	70.5	76.8	72.6
Reserves and other non-compulsory deposits	69.6	71.3	72.1	29.5	23.2	27.4

Sources: Bank of Portugal, *Boletim Estatistico* .

1/ Securities repurchase agreements, central bank monetary certificates, central bank intervention bills and time-deposits.

Table 32. Portugal: Official Interest Rates
(In percent)

		Regular Operations 1/	Standing Facility	Absorption of Liquidity
1996				
August	I	7.500		
	II	7.510		
	III	7.500		
	IV	7.250		
September	I	7.250		
	II	7.250		
	III	7.256		
	IV	7.250		
October	I	7.100		
	II	7.100		
	III	7.000		
	IV	7.000		
November	I	7.100		
	II	7.100		
	III	6.900	8.500	6.400
	IV	6.900		
December	I	6.900		
	II	6.900		
	III	6.700	8.300	6.200
	IV	6.700		
1997				
January	I	6.707		
	II	6.500		
	III	6.500		
	IV	6.500		
February	I	6.500		
	II	6.500		
	III	6.500		
	IV	6.500		
March	I	6.520		
	II	6.520		
	III	6.520		
	IV	6.500		
April	I	6.300		
	II	6.300	7.800	5.800
	III	6.300		
	IV	6.300		
May	I	6.300		
	II	6.000	7.700	5.700
	III	6.000		
	IV	6.000		
June	I	6.001		
	II	6.002		
	III	6.000		
	IV	6.000		
July	I	6.000		
	II	5.700	7.400	5.400
	III	5.703		
	IV	5.700		
August	I	5.710		
	II	5.730		
	III	5.500	7.200	5.200
	IV	5.501		

Source: Bank of Portugal.

1/ Since July 14, 1994 this rate corresponds to the weighted average repo rate.

Table 33. Portugal: Selected Interest Rates

	Overnight rate	3-month interbank deposit rate	3-month treasury bill 1/	1-year treasury bill 1/	10-year bond yield	Year-on-year CPI inflation
1994						
June	14.4	13.7	11.9	11.5	11.0	5.6
July	11.8	12.7	12.5	12.0	11.3	5.1
August	10.3	11.9	11.7	11.5	11.3	4.8
September	9.4	10.7	11.0	10.8	11.8	4.7
October	9.1	10.2	10.1	10.5	11.6	4.5
November	8.8	10.0	9.9	10.4	11.5	4.0
December	8.9	10.5	10.4	10.7	11.6	4.0
1995						
January	8.8	10.7	10.5	11.3	11.8	4.5
February	8.8	9.9	9.9	10.9	11.7	4.6
March	9.9	11.0	10.7	11.5	12.0	4.8
April	9.2	10.8	10.7	11.5	12.2	4.6
May	9.0	10.0	10.0	11.0	11.9	4.3
June	9.0	9.9	9.8	10.8	11.9	3.8
July	8.9	9.5	9.3	10.1	11.7	3.7
August	8.7	9.3	9.2	9.9	11.3	4.0
September	8.6	9.3	9.1	9.6	11.2	4.0
October	8.7	9.3	9.1	9.5	11.2	4.0
November	8.7	9.1	8.9	...	10.7	3.9
December	8.6	8.9	8.8	8.9	10.0	3.4
1996						
January	8.2	8.4	8.3	8.4	9.4	2.5
February	8.0	8.1	7.9	7.9	9.5	2.5
March	7.9	8.0	7.8	7.8	9.5	2.4
April	7.5	7.5	7.1	7.2	9.1	2.9
May	7.2	7.2	6.9	6.9	9.0	3 5
June	7.4	7.3	7.0	7.0	8.9	3.6
July	7.4	7.3	· 7.2	7.1	8.7	3.8
August	7.2	7.2	7.2	7.2	8.7	3.6
September	7.1	7.2	7.0	7.0	8.3	3.4
October	7.0	6.9	6.8	6.7	7.6	3.0
November	6.9	6.9	6.7	6.5	7.2	3.0
December	6.7	6.4	6.4	6.0	7.0	3.3
1997						
January	6.4	6.2	5.9	5.5	6.7	3.3
February	6.3	6.2	6.1	5.6	6.7	2.9
March	6.2	6.3	6.1	5.9	6.9	2.5
April	6.1	6.0	5.8	5.7	6.8	1.8
May	5.9	5.7	5.6	5.3	6.5	2.1
June	6.0	5.9	5.6	5.3	6.4	1.8
July	5.7	5.8	5.6	5.2	6.3	1.7
August	5.6	5.5	5 4	5.2	6.4	1.9

Source: Bank of Portugal.

1/ Primary market rates.

Table 34. Portugal: Lending and Deposit Rates 1/

(In percent)

| | 1994 | | | | 1995 | | | | 1996 | | | | 1997 | |
	Mar.	Jun.	Sept.	Dec.	Mar.	Jun.	Sept.	Dec.	Mar.	Jun.	Sept.	Dec.	Mar.	Jun.
Lending Rates														
Over 90 days and up to 180 days	15.0	15.4	15.2	14.7	13.8	13.5	13.0	12.7	12.3	10.8	11.2	11.0	9.7	9.1
Discount of commercial bills	17.9	17.4	17.3	16.3	16.2	15.9	15.6	14.6	14.4	13.6	12.9	12.1	12.2	11.6
Over 180 days and up to 1 year	14.8	15.1	15.4	14.9	14.5	13.4	11.8	13.3	12.2	10.6	10.7	10.0	10.1	9.6
Over 2 years and up to 5 years	16.5	16.3	15.2	15.0	15.3	15.7	14.6	13.6	14.2	13.2	12.5	11.0	10.7	10.0
Over 5 years	15.7	14.7	14.6	12.8	13.1	14.0	13.3	12.4	12.6	11.8	10.9	9.5	9.2	9.3
Deposit rates (time deposits)														
Over 31 days and up to 90 days	9.0	9.8	9.1	8.7	9.1	8.7	8.1	8.1	7.3	6.4	6.3	5.9	5.4	4.8
Over 90 days and up to 180 days	9.2	9.3	9.5	9.3	8.9	8.9	8.3	8.1	7.2	6.4	6.2	5.5	5.3	4.9
Over 180 days and up to 1 year	8.1	8.2	8.3	8.2	8.6	8.5	8.2	8.1	7.0	6.2	5.9	5.4	4.8	4.6
Over 1 year	8.3	8.2	8.3	8.2	8.4	8.4	8.1	8.0	7.1	6.1	6.0	5.3	4.8	4.5

Source: Bank of Portugal.

1/ Weighted averages; loans and advances to nonfinancial enterprises excluding public enterprises.
2/ Provisional data.
3/ Since May 12, 1992 limits on these rates were lifted.

Table 35. Portugal: Exchange Rate Developments

(Percentage changes over previous years) 1/

	1991	1992	1993	1994	1995	1996	1997
Rate of Portuguese escudo against: 2/							
U.S. dollar, period average	-1.3	7.0	-16.0	-3.1	9.9	-2.0	-18.5
U.S. dollar, end of period	-0.4	-8.6	-17.0	11.1	6.5	-4.5	-16.7
ECU, period average	1.5	2.5	-7.1	-4.4	1.2	0.5	-3.1
ECU, end of period	2.2	1.1	-10.1	1.0	1.9	-1.4	-3.1
DM, period average	1.4	1.0	-11.0	-4.9	-1.5	2.4	0.6
DM, end of period	1.8	-2.9	-11.0	-0.5	0.7	1.9	0.4
Nominal effective exchange rate							
Bank of Portugal index 3/	0.7	3.2	-6.0	-4.1	2.0	-0.5	...
IMF 4/	0.5	3.6	-5.7	-3.4	1.7	0.2	-1.4
Real effective exchange rate							
Bank of Portugal index 3/	6.7	8.1	-3.1	-1.9	3.4	0.3	...
IMF (ULC) 2/	11.5	11.4	-1.5	-0.9	4.6	0.1	-3.8
IMF (consumer prices) 4/	6.9	8.6	-2.8	-1.2	2.8	0.7	-1.3
Memorandum items: 2/							
Escudos per U.S. dollar, end of period	144.5	135.0	160.8	166.0	151.1	154.2	186.7
Escudos per U.S. dollar, period average	134.2	146.8	176.8	159.1	149.4	156.4	182.2
Escudos per DM, end of period	87.2	86.3	97.0	102.0	103.6	101.2	101.0
Escudos per DM, period average	88.1	90.7	101.9	102.4	101.7	99.8	101.1

Sources: Bank of Portugal; IMF, *International Financial Statistics*; and Fund staff estimates.

1/ A negative sign indicates a depreciation.
2/ Data for 1997 is for August.
3/ Trade weighted vis-à-vis 13 competitor countries (weights adjusted periodically).
4/ Data for 1997 is for June.

Table 36. Portugal: Merchandise Trade and Terms of Trade

(Customs basis)

	1991	1992	1993 1/	1994	1995	1996
Exports, f.o.b. (in billions of escudos)	2,354.1	2,475.2	2,474.4	2,975.6	3,501.8	3,677.5
Percentage change in unit value	-0.3	-2.2	1.7	4.8	4.2	-3.8
Percentage change in volume	1.1	7.5	-1.7	14.8	13.0	9.2
Imports, c.i.f. (in billions of escudos)	3,811.1	4,087.6	3,882.8	4,514.3	5,028.7	5,265.4
Percentage change in unit value	-0.9	-5.5	0.8	3.1	1.7	-0.2
Percentage change in volume	7.2	13.5	-5.8	12.8	9.5	4.9
Trade balance, fob-cif,						
(in billions of escudos)	-1,457.0	-1,612.4	-1,408.4	-1,538.7	-1,526.9	-1,587.9
In percent of GDP	-13.0	-12.5	-10.4	-10.6	-9.8	-9.6
Terms of trade (percentage change)	0.6	3.5	0.9	1.6	2.5	-3.5
Memorandum items:						
Market growth	3.4	2.5	-6.0	11.9	8.1	4.0
Change in competitor countries' prices						
(in US$, export weighted)	-2.4	3.5	-9.5	2.0	12.2	...
Change in Portugal's export prices						
(in US$)	-1.6	4.8	-14.1	1.6	15.3	-0.9

Sources: Direcção-Geral do Comércio; Bank of Portugal; IMF Research Department and *International Financial Statistics.*

1/ National accounts estimates from 1993 onwards - Bank of Portugal.
2/ A negative sign indicates a depreciation of the escudo.

Table 37. Portugal: Geographical Distribution of Trade 1/

	1991	1992	1993	1994	1995	1996
	(In percent of total imports)					
Imports						
Industrial countries	84.1	86.6	85.6	84.5	83.7	84.4
Of which:						
EU-12	70.2	73.6	71.8	71.1	74.5	75.6
Of which:						
France	11.6	12.9	12.7	12.8	11.8	11.1
Germany	14.6	14.7	15.0	13.9	14.8	15.5
Italy	10.0	10.3	8.7	8.6	8.4	8.3
Netherlands	6.0	6.9	4.9	4.3	4.5	4.4
Spain	15.5	16.7	17.9	19.9	21.2	22.4
United Kingdom	7.4	7.2	7.4	6.6	6.6	6.7
United States	3.3	3.0	3.2	3.6	3.3	3.2
Japan	2.8	3.1	3.2	2.9	2.2	2.2
Oil exporting countries	5.5	3.7	5.0	5.7	5.0	4.5
Other	10.4	9.7	9.4	9.8	11.3	11.1
	(In percent of total exports)					
Exports						
Industrial countries	88.6	89.1	90.2	90.4	90.1	89.2
Of which:						
EU-12	75.1	75.2	75.3	76.0	80.5	79.9
Of which:						
France	13.9	14.2	15.1	14.7	14.1	14.1
Germany	18.9	19.2	19.6	18.9	21.5	21.2
Italy	3.8	3.9	3.0	3.4	3.4	3.7
Netherlands	5.5	5.4	5.2	5.4	5.3	4.9
Spain	14.6	14.9	14.4	14.5	15.0	14.2
United Kingdom	10.4	11.2	11.4	11.6	11.1	10.8
United States	3.6	3.5	4.4	5.2	4.5	4.6
Japan	0.8	0.8	0.8	0.8	0.8	0.8
Oil exporting countries	0.6	0.6	0.9	0.8	0.6	0.6
Other	10.8	10.3	8.9	8.8	8.3	10.2

Source: IMF, *Direction of Trade Statistics* .

1/ From 1993 onwards - source: Direcção-Geral do Comércio.

Table 38. Portugal: Composition of Exports

(Custom basis, in percent)

	1992	1993 1/	1994	1995	1996 2/ Jan.-Nov.
	(Share of total exports)				
Agricultural products	7.7	7.3	7.3	7.4	7.2
Energy products	2.9	3.4	4.1	3.3	2.3
Products of chemical industry	5.3	5.6	6.3	6.2	5.9
Wood, cork, paper and paper products	10.6	10.5	10.8	11.2	9.4
Hides, skins and textile products	8.6	8.7	8.4	7.8	7.5
Clothing and footwear	30.4	29.9	27.7	23.9	22.9
Metal and mineral products	5.7	6.0	6.1	6.0	5.2
Machinery	14.1	14.7	15.8	17.4	16.5
Transport equipment	7.6	6.5	6.0	9.5	16.2
Other	7.0	7.4	7.6	7.3	6.9
	(Volume percent changes)				
Agricultural products	5.9	-5.2	18.2	14.8	5.2
Energy products	42.6	2.7	51.8	-4.4	-32.7
Products of chemical industry	8.7	3.1	27.5	2.9	3.2
Wood, cork, paper and paper products	0.4	3.2	7.2	0.2	7.8
Hides, skins and textile products	5.0	-3.6	11.7	3.9	3.5
Clothing and footwear	4.5	-5.1	6.4	-2.4	3.5
Metal and mineral products	3.3	3.2	10.9	5.2	0.0
Machinery	12.0	2.7	27.5	37.0	3.6
Transport equipment	20.5	-10.2	6.0	81.9	116.3
Other	4.5	3.1	18.6	16.9	6.9
Total	7.5	-1.7	14.8	13.0	9.2
	(Changes in prices)				
Agricultural products	-5.5	0.7	1.7	3.0	1.8
Energy products	-17.7	12.0	-4.2	-1.8	11.1
Products of chemical industry	-10.7	1.6	5.8	13.5	-3.2
Wood, cork, paper and paper products	-2.4	-3.8	15.7	19.8	-16.0
Hides, skins and textile products	-2.4	4.6	3.9	4.8	-0.3
Clothing and footwear	0.7	3.8	4.7	3.2	-0.2
Metal and mineral products	-5.1	0.7	10.0	8.9	-5.4
Machinery	-0.8	2.0	0.8	-1.6	-2.0
Transport equipment	2.8	-5.2	4.3	2.1	-6.5
Other	0.8	1.5	4.2	-2.5	-5.1
Total	-2.2	1.7	4.8	4.2	-3.8

Sources: Direcção-Geral do Comércio; and Bank of Portugal.

1/ Data from 1993 onwards computed on a new, not directly comparable basis relative to previous years.
2/ 1996 nominal (and real) percent changes are calculated by the Bank of Portugal, based on comparisons of provisional data for 1996.

Table 39. Portugal: Composition of Imports

(Custom basis; in percent)

	1992	1993 1/	1994	1995	1996 2/ Jan.-Nov.
	(Share of total imports)				
Agricultural products	12.5	14.0	14.6	13.9	13.8
Energy products	8.0	8.8	8.6	8.3	7.7
Products of chemical industry	11.3	11.9	12.3	12.9	12.8
Hides, skins, wood, cork, and paper	5.6	5.7	6.0	6.4	5.8
Textiles, clothing and footwear	11.0	10.7	10.9	10.7	10.4
Metal and mineral products	7.5	7.2	8.0	8.9	7.8
Machinery	22.0	20.9	19.4	20.1	21.3
Transport equipment	16.1	14.8	15.1	13.7	14.9
Other	6.0	6.0	5.3	5.1	5.5
	(Volume percent changes)				
Agricultural products	10.0	4.6	15.8	5.1	3.4
Energy products	11.6	-0.6	11.0	7.2	-14.5
Products of chemical industry	14.2	1.9	16.1	9.1	10.3
Hides, skins, wood, cork, and paper	15.4	-3.9	14.9	8.3	0.6
Textiles, clothing and footwear	15.6	-6.5	12.7	8.8	5.4
Metal and mineral products	10.8	-7.1	20.0	12.8	1.2
Machinery	6.9	-9.9	3.9	19.9	14.8
Transport equipment	25.5	-16.7	15.9	-3.7	17.0
Other	18.7	-3.2	-0.2	16.8	14.3
Total	13.5	-5.8	12.8	9.5	4.9
	(Changes in prices)				
Agricultural products	-7.1	1.4	3.9	0.7	3.3
Energy products	-15.0	5.1	0.7	-0.3	17.3
Products of chemical industry	-5.5	-1.1	2.1	6.1	-3.6
Hides, skins, wood, cork, and paper	-4.2	0.8	5.8	7.8	-3.1
Textiles, clothing and footwear	-7.3	-1.1	3.6	1.1	-0.8
Metal and mineral products	-8.2	-2.6	7.3	9.1	-7.9
Machinery	-3.6	0.0	3.3	-0.9	-0.7
Transport equipment	1.8	4.6	1.5	0.9	0.3
Other	-6.7	-1.4	1.5	-6.1	0.0
Total	-5.5	0.8	3.1	1.7	-0.2

Sources: Direcção-Geral do Comércio; and Bank of Portugal.

1/ Data from 1993 onwards computed on a new, not directly comparable basis relative to previous years.
2/ 1996 nominal (and real) percent changes are calculated by the Bank of Portugal, based on comparisons of provisional data for 1996.

Table 40. Portugal: Indicators of Tourism

	1991	1992	1993	1994	1995	1996
Tourist arrivals						
(In thousands)	19,641	20,742	20,579	21,728	22,875	22,989
(Annual percentage change)	6.6	5.6	-0.8	5.7	5.1	0.5 1/
Number of person-nights	18,867	17,877	15,965	18,176	20,357	19,881
Of which:						
Germany	3,213	3,298	3,043	4,144	5,031	5,188
Spain	1,851	1,625	1,496	1,556	1,422	1,450
France	965	785	696	839	881	926
Netherlands	1,657	1,495	1,125	1,435	1,389	1,420
United Kingdom	5,560	5,697	5,341	5,415	5,738	5,567
United States	482	539	463	529	476	488
Japan	72	75	102	113	117	137
Tourist receipts						
(In millions of U.S. dollars) 2/	3,710	3,721	4,068	4,103	4,842	4,697
(Annual percentage change)	4.4	0.3	9.3	0.9	18.0	-3.1

Sources: Bank of Portugal; Direcção-Geral do Turismo; and IMF, *International Financial Statistics.*

1/ July 1996.
2/ New series (Bank of Portugal estimates) from 1993 onwards.

Table 41. Portugal: Balance of Payments - Transactions Basis

(In billions of escudos)

	1991	1992	1993	1994	1995	1996 Prov.
I. Current account	-103.7	-39.8	12.7	-366.3	-107.5	-412.2
Goods and services	-898.2	-1,072.4	-1,038.7	-1,140.7	-1,082.1	-1,262.0
Merchandise f.o.b. 1/	-1,365.4	-1,455.4	-1,286.1	-1,376.4	-1,350.4	-1,483.0
Services	467.2	383.0	247.3	235.7	268.2	221.1
Transportation	-32.4	-30.5	-26.9	-68.1	-28.8	-43.5
Travel and tourism 1/	540.2	-101.1	348.9	398.7	405.2	361.4
Insurance	-10.5	485.2	-16.1	-25.8	-31.5	-23.0
Other services	-3.6	-22.3	-31.0	-39.8	-46.9	-38.0
Government operations	-26.4	-23.9	-27.6	-29.3	-29.9	-35.9
Income	-73.4	-19.0	-22.8	-122.2	-102.3	-203.5
Labour income	13.1	0.2	13.5	11.6	11.3	11.1
Capital income 2/	-72.1	-6.6	-14.1	-104.5	-80.9	-178.2
Other income	-14.9	-12.6	-22.3	-29.3	-32.7	-36.3
Unilateral transfers	867.8	1,051.5	1,074.2	896.7	1,077.0	1,053.2
Public	201.7	410.0	459.1	322.2	567.1	534.9
Private	666.2	641.5	615.1	574.4	509.9	518.3
II. Nonmonetary financial account	325.4	197.3	434.0	-284.4	-160.4	-380.3
Direct investment	300.0	206.5	226.6	161.2	0.9	-23.9
Portuguese investment abroad	-68.1	-92.9	-22.6	-47.0	-103.3	-118.9
Foreign direct investment in Portugal	368.1	299.4	249.2	208.2	104.2	95.0
Portfolio investment	175.0	-214.2	313.8	93.7	-99.2	-1.9
Portuguese investment abroad	2.1	-50.3	-406.1	-551.7	-406.7	-794.0
Foreign investment in Portugal 2/	172.9	-169.9	719.8	645.5	307.5	792.1
External credits	-106.7	198.0	40.7	-152.6	14.3	-142.3
Granted to nonresidents	-5.5	-27.0	-28.4	-9.1	-47.7	-64.9
Received	-101.2	225.0	69.1	-143.5	62.0	-77.4
Other operations	-42.9	7.0	-147.2	-386.8	-76.3	-212.2
Assets	...	...	-173.2	-390.1	-73.5	-209.2
Deposits	...	...	-126.0	-329.4	-63.3	-214.8
Other	...	...	-47.2	-60.6	-10.2	5.7
Liabilities	...	...	26.0	3.3	-2.9	-3.0
III. Change in short-term net foreign assets of banks 3/	282.3	-231.8	-883.2	388.9	703.2	1,233.4
IV. Operations still to be classified	...	...	12.0	6.2	11.6	12.5
V. Leads and lags and statistical adjustments	363.7	87.7	-3.5	-53.9	-481.6	-374.0
VI. Change in official reserves	-867.6	-13.4	428.1	309.5	34.7	-79.4
Assets	-855.4	-14.3	434.0	259.3	50.1	-71.1
Liabilities	-12.1	0.9	-5.8	50.1	-15.4	-8.4
Memorandum Item:						
Nonofficial capital account (II+V)	989.0	285.0	-449.3	104.5	542.8	853.2

Source: Bank of Portugal.

1/ Figures estimated by the Bank of Portugal.
2/ Includes corrections resulting from accounting of portfolio investment income debits on a transactions basis.
3/ A plus (minus) sign indicate a net decrease (net increase) in assets or a net increase (net decrease) in liabilities.

Table 42. Portugal: Current Account - Transactions Basis

(In billions of escudos)

	1991	1992	1993	1994	1995	1996 Prov.
I. Current Account	-103.8	-39.8	12.7	-366.2	-107.5	-412.3
Goods and Services	-898.2	-1,072.4	-1,038.7	-1,140.6	-1,082.1	-1,262.0
Merchandise f.o.b. 1/	-1,365.4	-1,455.4	-1,286.1	-1,376.4	-1,350.3	-1,483.0
Credits	2,361.5	2,482.6	2,557.3	3,084.0	3,629.4	3,897.8
Debits	-3,727.0	-3,938.0	-3,843.4	-4,460.4	-4,979.7	-5,380.8
Services	467.3	383.0	247.3	235.8	268.2	221.0
Transportation	-32.4	-30.5	-26.9	-68.1	-28.8	-43.5
Credits	196.5	195.6	189.7	169.9	229.2	225.2
Debits	-228.9	-226.1	-216.6	-238.0	-258.0	-268.7
Travel and tourism 1/	540.2	485.2	348.9	398.7	405.2	361.4
Credits	734.7	705.7	654.0	680.8	726.4	724.2
Debits	-194.5	-220.6	-305.0	-282.1	-321.2	-362.8
Insurance	-10.5	-22.3	-16.1	-25.8	-31.5	-23.0
Credits	45.9	41.4	41.8	15.3	16.6	26.5
Debits	-56.4	-63.8	-58.0	-41.1	-48.1	-49.5
Other services	-3.7	-23.9	-31.0	-39.7	-46.8	-38.0
Credits	222.5	217.0	237.9	233.3	254.5	264.3
Debits	-226.2	-240.9	-268.9	-273.0	-301.3	-302.3
Government operations	-26.4	-25.3	-27.6	-29.3	-29.9	-35.9
Credits	6.0	6.3	8.1	8.9	11.3	11.6
Debits	-32.4	-31.7	-35.7	-38.2	-41.2	-47.5
Income	-73.4	-19.0	-22.8	-122.2	-102.3	-203.5
Labor income	13.1	0.2	13.5	11.6	11.3	11.1
Credits	29.0	15.7	21.9	22.6	24.0	24.0
Debits	-15.9	-15.5	-8.3	-11.0	-12.7	-12.9
Capital income 2/	-72.1	-6.6	-14.1	-104.5	-80.9	-178.3
Credits	244.5	355.7	372.3	347.2	516.6	525.1
Debits	-316.6	-362.2	-386.4	-451.7	-597.5	-703.4
Other income	-14.4	-12.6	-22.3	-29.3	-32.7	-36.3
Credits	2.2	8.0	5.8	4.9	3.0	4.0
Debits	-16.6	-20.6	-28.1	-34.2	-35.7	-40.3
Unilateral Transfers	867.8	1,051.5	1,074.2	896.6	1,076.9	1,053.2
Public 3/	201.7	410.0	459.1	322.2	567.0	534.9
Credits	331.1	559.8	649.4	584.8	782.1	767.5
Debits	-129.4	-149.8	-190.2	-262.6	-215.1	-232.6
Private	666.2	641.5	615.1	574.4	509.9	518.3
Credits	718.8	697.5	696.0	643.8	584.1	584.7
Debits	-52.6	-56.0	-80.9	-69.4	-74.2	-66.4

Source: Bank of Portugal.

1/ Figures estimated by the Bank of Portugal.
2/ Includes corrections resulting from accounting of portfolio investment income debits on a transactions basis.
3/ Includes capital transfers from the European Union.

Table 43. Portugal: Net Foreign Direct Investment -
Breakdown by Main Sectors of Economic Activity and Country of Origin

	1991	1992	1993	1994	1995	1996 Prov.
			(In millions of U.S. dollars)			
Total	2,708	2,015	1,410	1,309	698	607
Agriculture, forestry, hunting and fishing	23	16	13	3	1	11
Mining and quarrying	8	15	6	1	4	2
Manufacturing industry	439	258	277	599	268	-78
Electricity, gas and water	9	9	138	12	276	-89
Construction and public works	203	151	40	21	27	17
Wholesale and retail trade, restaurants and hotels	237	-48	100	144	211	245
Banks and other financial institutions, insurance and real estate	1,682	1,521	777	489	-133	399
Other	108	93	58	40	44	99
			(In percent of total)			
Total	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture, forestry, hunting and fishing	0.9	0.8	1.0	0.3	0.2	1.9
Mining and quarrying	0.3	0.8	0.4	0.1	0.5	0.4
Manufacturing industry	16.2	12.8	19.6	45.8	38.5	-12.8
Electricity, gas and water	0.3	0.5	9.8	0.9	39.5	-14.6
Construction and public works	7.5	7.5	2.9	1.6	3.8	2.8
Wholesale and retail trade, restaurants and hotels	8.8	-2.4	7.1	11.0	30.2	40.4
Banks and other financial institutions, insurance and real estate	62.1	75.5	55.1	37.4	-19.1	65.6
Other	4.0	4.6	4.1	3.0	6.3	16.3
			(In millions of U.S. dollars)			
Memorandum Items: Country of Origin						
Germany	89	111	210	347	126	-71
Spain	328	161	389	199	-130	528
France	314	359	99	148	162	67
United Kingdom	544	598	255	-17	186	180
United States	236	83	36	45	28	-121
Switzerland	149	62	124	159	86	168
Japan	41	26	34	16	13	5
Other	1,007	615	263	413	225	-149

Source: Bank of Portugal.

Table 44. Portugal: Official Reserves 1/

(In millions of U.S. dollars; end-of-period)

	1991	1992	1993	1994	1995	1996	1997 March	1997 August
I. Net official reserves								
With gold at book value	25,644	24,240	20,957	20,354	20,719	20,633	19,528	18,673
With gold at market price	26,124	24,558	21,785	21,325	21,710	21,351	20,109	18,701
II. Assets								
With gold at book value	25,738	24,333	21,005	20,716	20,997	20,844	19,618	18,869
With gold at market price	26,218	24,651	21,833	21,687	21,988	21,562	20,199	18,897
Gold 2/								
At book value	5,125	5,188	5,189	5,189	5,189	4,993	4,569	4,021
At market price	5,605	5,506	6,017	6,160	6,180	5,711	5,150	4,049
Foreign currency	17,593	16,659	13,188	12,745	13,088	13,010	12,410	12,096
Official ECU	2,637	2,109	2,255	2,356	2,151	2,239	2,094	2,193
Other assets	383	378	374	426	569	602	545	559
III. Liabilities	94	92	48	362	278	211	90	196
Memorandum Items:								
Gold (in thousand troy ounces) 3/	20,080	20,080	20,080	20,082	20,082	20,084	20,084	20,086
of which: gold swaps with EMCF/EMI	4,016	4,016	4,016	4,016	4,016	4,017	4,017	4,017
SDRs	98	46	58	71	84	98	98	100
Reserve position in the Fund	270	314	302	337	450	461	423	405

Sources: Bank of Portugal; and IMF, *International Financial Statistics* .

1/ Assets and liabilities of monetary authorities (Bank of Portugal and Treasury).
2/ From May 1988 onwards, the book value of gold is US$323 per troy ounce. Since December 1986, the market price
is determined following the valorization principle of the European Monetary Co-operation Fund (EMCF)/European Monetary
Institute (EMI).
3/ Includes gold swaps.
4/ July.

Table 45. Portugal: External Debt

(In millions of U.S. dollars; end-of-period)

	1991	1992	1993	1994	1995	1996
Medium- and long-term bank debt	15,829	16,287	13,648	13,946	14,854	14,067
General government	4,242	3,995	2,099	1,973	2,229	1,970
Nonfinancial public enterprises	7,011	6,968	6,303	6,596	7,123	6,969
Monetary institutions	1,296	1,420	902	846	685	534
Other	3,280	3,904	4,344	4,531	4,817	4,594
Short-term bank debt	2,431	2,849	2,496	2,275	2,652	2,067
Bank of Portugal and other						
monetary institutions	17	103	18	20	45	28
Nonfinancial public enterprises	837	1,044	843	374	1,462	1,745
Other	1,577	1,702	1,635	1,881	1,145	294
Stock of public debt bonds held by nonresidents	4,883	3,891	5,609	9,523	9,822	12,213
Of which:						
Public debt bonds issued in domestic market (PTE)	3,079	2,434	2,234	3,148	563	1,841
Public debt bonds issued in external markets						
(foreign currency)	1,804	1,457	3,375	6,375	9,259	10,372
Stock of other bonds held by nonresidents	224	84	367	531	511	1,001

Source: Data provided by the Portuguese authorities.

Table 46. Portugal: Net External Position

(In billions of escudos)

	1993	1994	1995	1996 Prov.
Net external position	2,346.6	2,060.1	1,004.2	868.0
Foreign assets	8,560.4	9,589.1	10,314.2	11,571.6
Foreign liabilities	6,213.9	7,528.9	9,310.1	10,703.5
Nonmonetary sector	-2,444.9	-2,278.9	-2,600.8	-2,389.7
Foreign assets	1,307.4	1,767.6	1,822.0	2,488.0
Deposits 1/	1,085.4	1,173.9	1,119.7	1,267.5
Securities held by residents 2/	221.9	593.7	702.3	1,220.5
Foreign liabilities	3,752.3	4,046.5	4,422.7	4,877.7
Included in the external debt	2,695.3	2,446.3	2,513.4	2,439.7
Securities held by nonresidents 3/	1,057.0	1,600.2	1,909.4	2,438.0
Monetary sector	4,791.5	4,339.0	3,604.9	3,257.7
Monetary authorities	3,705.6	3,238.1	3,095.8	3,226.5
Foreign assets 4/	3,714.0	3,295.7	3,137.3	3,259.6
Foreign liabilities	8.4	57.6	41.5	33.1
Banks	1,085.9	1,101.0	509.2	31.2
Short-term	753.6	592.2	-295.3	-1,193.5
Foreign assets held	2,958.1	3,726.9	4,212.6	4,229.1
Foreign liabilities	2,204.5	3,134.7	4,507.9	5,422.6
Medium and long term	332.3	508.8	804.4	1,224.6
Foreign assets	580.9	798.9	1,142.4	1,594.8
Foreign liabilities	248.7	290.1	338.0	370.2
Memorandum Item:				
Net external assets (DLX) of the monetary sector 5/	4,459.2	3,830.3	2,800.5	2,033.1

Source: Bank of Portugal.

1/ Deposits of residents with nonresidents banks (Source: BIS).
2/ Long-term debt securities (bonds) and short-term securities. The stock of these securities held by residentes corresponds to an estimate, obtained by accumulating flows.
3/ Long-term debt securities (bonds) and money market instruments held by nonresidents.
4/ Assets of Bank of Portugal and Treasury with gold valued at book value.
5/ Net external position of the monetary authorities and short-term net external position of banks.

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