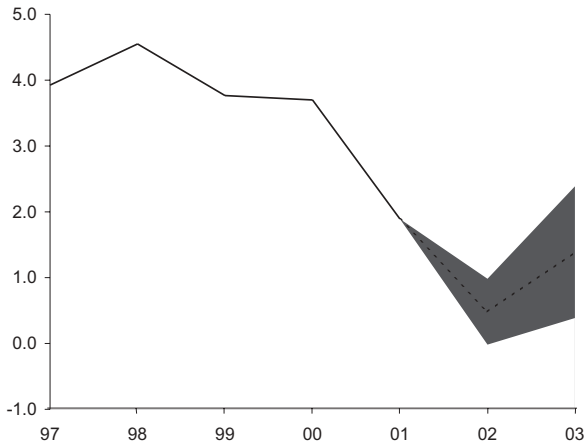
OUTLOOK FOR THE PORTUGUESE ECONOMY IN 2002-2003

1. INTRODUCTION

This article presents the macroeconomic projections of the Banco de Portugal for 2002 and 2003. These projections were prepared in the context of the Eurosystem's Spring projection exercise and were based on data available up to mid-May. The main results for Portugal show a continuing slowdown of economic activity in 2002 (see Table 1 and Chart 1), which is likely to be followed by some recovery in 2003. The combined current and capital account is likely to improve in both years, as a reflection of the gradual reduction in the net borrowing requirements of the Portuguese economy. With regard to developments in consumer prices, the annual average inflation is likely to decline slightly in 2002 and 2003, even taking into account the recent change in the value added tax (VAT) (see Chart 2).

Chart 1
GDP
Year-on-year percentage rates of change



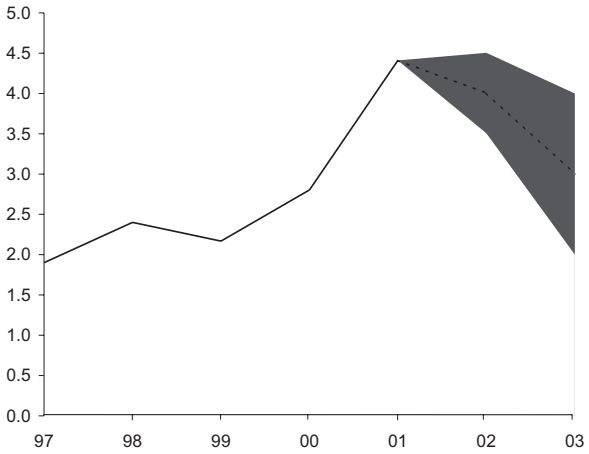
Comparing the current projections for 2002 with those published in the December 2001 issue

Table 1

PROJECTIONS OF THE BANCO DE PORTUGAL
Year-on-year rates of change

		Current projection		Memo item: EB-Dec/2001	
	2001	2002	2003	2001	2002
Private consumption	0.8	[½ ; 1½]	[¼ ; 2 ¼]	[¾ ; 1¼]	[1 ; 2]
Public consumption	3.4	0.9	0.1	1.9	0.7
Gross fixed capital formation	-0.8	[-5 ; -3]	[-2 ; 2]	[-1 ; 1]	[-3¼ ; ¾]
Domestic demand	0.9	[-¾ ; ¼]	[-¼ ; 1¾]	[¾ ; 1¼]	[¼ ; 1¼]
Exports	3.3	[1 ; 2½]	[5¾ ; 8¾]	[4¼ ; 5¼]	[3 ; 4½]
Overall demand	1.5	[-¼ ; ¾]	[1 ; 3]	[1½ ; 2]	[1 ; 2]
Imports	0.5	[-1½ ; ½]	[2 ; 6]	[1¼ ; 3¼]	[0 ; 3]
GDP	1.9	[0 ; 1]	[½ ; 2½]	[1½ ; 2]	[1 ; 1¾]
Current account + Capital account (%) GDP	-8.1	[-6½ ; -5]	[-6½ ; -3½]	[-8¾ ; -7¾]	[-6¼ ; -4¼]
Harmonised Index of Consumer Prices	4.4	[3.5 ; 4.5]	[2.0 ; 4.0]	4.4	[2.2 ; 3.2]

Chart 2
HARMONISED INDEX OF CONSUMER PRICES
Year-on-year rates of change



of the *Economic Bulletin*, corresponding to the Autumn exercise (based on data available up to mid-November), there were some significant revisions. Among the factors behind these revisions reference should be made to: i) changes in the common assumptions of the Eurosystem's exercise about exchange rates, interest rates, international economic activity outside the euro area and developments in international commodity prices; ii) changes in the assumptions about expected developments in relevant external demand for the Portuguese economy; iii) revision of specific assumptions for Portugal with regard to tax and budgetary variables; and iv) carry-over effects stemming from the change in the starting point for the projections.

Economic growth projected for 2002 is now lower than in the previous exercise, particularly due to the downward revision of external demand and to carry-over effects resulting from revisions of the composition of growth in 2001. With regard to the latter, and although there was only a minor change in the GDP growth rate in 2001, it should be noted that since the previous exercise significant downward revisions have been made to the growth estimates for the main expenditure components, with the exception of government consumption. Overall domestic demand was revised around -1 percentage point (p.p.).

Compared with the previous projection exercise, the slight revision of the combined current and capital account for 2002 includes a small narrowing of the deficit projected for the goods and services account, which is, however, more than offset by a downward revision of the transfers and income accounts.

The inflation rate for 2002 was revised upwards, as a reflection of the rise in the standard VAT rate by 2 p.p., with effect from June, and less favourable developments than previously forecasted in consumer prices in late 2001 and early 2002, in particular with regard to prices of services and non-energy industrial goods.

2. ASSUMPTIONS UNDERLYING PROJECTIONS AND DEVELOPMENTS IN THE EXTERNAL ENVIRONMENT OF THE PORTUGUESE ECONOMY

As referred to in the introduction, current projections for the Portuguese economy were prepared in the context of an exercise for the euro area, in which participate experts from the European Central Bank (ECB) and the national central banks which comprise the Eurosystem. The June 2002 issue of the ECB Monthly Bulletin disclosed a summary of these projections. A key element of this joint exercise is that the projections made for the euro area and for each of the national economies which comprise it are based on a series of common assumptions with regard to, *inter alia*, developments in the international economic environment and developments in the international prices of the main commodities. In addition, a technical assumption is made that euro exchange rates and short-term market interest rates will remain unchanged over the projection horizon. The assumption with regard to long-term interest rates is based on market expectations, which in this exercise implies a slightly rising profile over the projection horizon.

Another key feature of the exercise is that projections for euro area economies are made simultaneously and aimed at ensuring their internal consistency. In particular, the compatibility of trade flows across the various euro area economies is ensured.

The above common assumptions and the projections for other euro area economies provide the international environment of the Portuguese economy, thereby enabling the establishment of as-

Table 2

SPRING PROJECTIONS FOR THE EURO AREA

Year-on-year rates of change

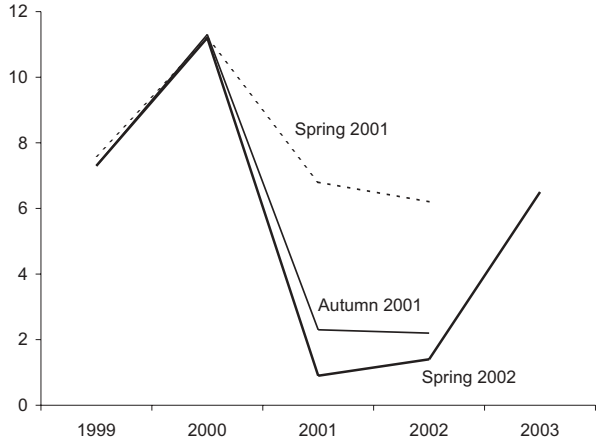
	Projection		
	2001	2002	2003
Private consumption	1.8	[1.0 ; 1.4]	[1.7 ; 3.0]
Public consumption	2.2	[1.0 ; 1.9]	[1.0 ; 2.0]
Gross fixed capital formation	-0.3	[-1.2 ; 1.0]	[1.0 ; 4.2]
Exports	2.7	[0.0 ; 2.9]	[4½ ; 7.7]
Imports	0.9	[-1.1 ; 2.3]	[4.4 ; 7.8]
GDP	1½	[0.9 ; 1½]	[2.1 ; 3.1]
Harmonised Index of Consumer Prices	2½	[2.1 ; 2½]	[1.3 ; 2½]

Source: June 2002 issue of the ECB Monthly Bulletin.

Chart 3

EXTERNAL DEMAND RELEVANT TO THE PORTUGUESE ECONOMY

Year-on-year percentage rates of change



sumption for a set of exogenous variables, such as relevant external demand for the Portuguese economy.

According to the common assumptions of the forecasting exercise, the world economy will grow by around 2.5 per cent in 2002, i.e. close to the rate recorded in the previous year. For 2003, world GDP is likely to accelerate to 3.8 per cent. This trend will be largely due to the gradual acceleration of the US economic activity, although the rates of growth seen at the end-1990s are not expected to be reached. In the case of the Japanese economy, a recovery is expected in 2002, supported by stronger export growth. In the case of the UK, the growth rate of the economy is expected to increase from the second quarter of 2002 onwards. Over 2002 a particularly significant recovery in Asian emerging market economies is also expected, while in Latin America a more modest pick-up is expected, in particular due to the crisis in Argentina.

GDP projections for euro area countries, which account for around two thirds of Portuguese external trade, point to a continuing slowdown in economic activity in 2002 as a whole, partly due to the carry-over effect of the strong deceleration in the second half of the previous year. From the second half of 2002 onwards and in the course of 2003, economic activity is forecasted to accelerate, namely as a reflection of a more buoyant external environment, and as a reflection of the expected recovery of the confidence levels of economic agents. Eurosystem projections point to an economic growth in the euro area between 0.9 and 1.5 per cent in 2002, and between 2.1 and 3.1 per cent in 2003 (see Table 2). According to these projections, and also to forecasted developments for other trading partners of Portugal, external demand for the Portuguese economy is likely to increase by 1.4 per cent in 2002, accelerating to 6.5 per cent in 2003 (see Chart 3).

World oil prices are assumed to follow a path in line with prices in futures markets, which in US dollars represents the maintenance of the oil price in 2002 at a rather similar level to that of the previous year and a slight decline in the following year. For the remaining commodities, the following price increases in euro are assumed: 6.2 per cent for 2002 and 7.1 per cent for 2003.

Compared with the assumptions of the Autumn projection exercise, current assumptions present some significant revisions. Projected oil prices are 31 and 23 per cent higher in 2002 and 2003 respectively. The rate of growth of relevant external demand for the Portuguese economy in 2001 was revised downwards by 1.4 p.p. from the figure assumed in the Autumn exercise, reflecting a more sizeable weakening of the economies in the latter part of the year than anticipated, in the aftermath of the events of 11 September in the US. For 2002 and 2003 the rate of growth of external demand was revised by -0.8 and +0.7 p.p. respectively.

In addition to the common assumptions established within from the Eurosystem's projection exercise, specific assumptions on the behaviour of a set of public finance variables were also considered for Portugal. In particular, similarly to the previous exercise, a strict control will be put in place in order to prevent further increases in the number of general government staff. This assumption affects especially developments in government consumption. Another assumption worthy of mention, in this case with implications on developments in public investment, is the strong reduction over the projection horizon of the public capital expenditure component that does not correspond to national contributions associated with projects co-financed by the European Union. Projections also took into account the change in the consumer fuel price regime, which took place early this year, as well as rises in the standard VAT rate and in the *ad valorem* component of the tax on tobacco, introduced in the Supplementary Budget for 2002.

3. OUTLOOK FOR THE PORTUGUESE ECONOMY IN 2002 AND 2003

3.1. Economic activity

In 2002 economic activity is likely to slow down further, with a projected rate of growth for GDP between 0 and 1 per cent. This trend results firstly from a change in domestic demand, forecasted to range between -¾ and ¼ per cent, especially as a result of negative developments in investment. Secondly, the international environment of the Portuguese economy, characterised by a still moderate growth pace, is likely to lead to a deceleration in exports, limiting their positive contribution to GDP growth. The impact of domestic demand developments on imports, which may record a slight real negative change, is likely to be the main factor behind the decline in the economy's external borrowing requirements, which in 2000 and 2001 reached levels above 8 per cent of GDP.

The behaviour of domestic demand, which is in line with the continuing downward trend of this variable since 2000, corresponds to a readjustment process following the extremely sharp increases seen in the late 1990s. In fact, from 1997 to 2000, while GDP grew at an annual average rate of 4 per cent, domestic demand increased by 5 per cent per annum. This strong expansion, in a context of declining interest rates, has contributed to the increase of the private sector indebtedness which now tends to limit the growth potential of domestic demand. In addition, the need to tighten public consumption and public investment also tends to condition domestic demand growth in the short term. In recent years fiscal policy had a clearly expansionary stance, thereby amplifying the effects on domestic demand of the stimulus from lower interest rates. Thus, there is no room for the operation of the automatic stabilisers in the current less favourable stage of the business cycle. Therefore, after being pro-cyclical in recent years, the fiscal policy will have to retain this feature due to a pressing need to correct the imbalance in public accounts.

In 2003 economic activity is likely to accelerate slightly, mainly boosted by higher export growth, as a consequence of the rebound in the international environment of the Portuguese economy. In 2003 domestic demand is projected to show a positive change, corresponding to a small acceleration in private consumption and to a close-to-zero change in investment and government consumption.

Private consumption is likely to maintain a moderate growth pace in 2002 and 2003. Underlying these developments is an annual average growth of household disposable income of around 1 per cent in real terms and the maintenance of the household savings rate in the projection period at around the figure recorded in 2001 (approximately 12 per cent). Stress should be laid on the fact that developments projected for the savings rate comes after the recovery seen from 1999 onwards, which was preceded by a period of pronounced decline.

Private consumption growth projected for 2002 includes a reduction in the consumption of durable goods. In 2003 this component is likely to grow in line with current consumption, thereby allowing a slight acceleration in private consumption as a whole. It should be reminded that consumption of durable goods grew strongly from 1997 to 1999, when the annual average rate of growth stood at around 10 per cent, subsequently followed by a slightly positive change in 2000 and a significant reduction in 2001, the latter amplified by the nega-

Chart 4
PRIVATE CONSUMPTION
Year-on-year rates of change

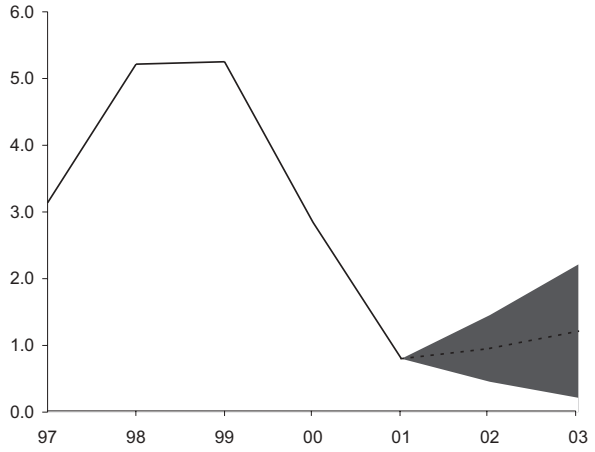
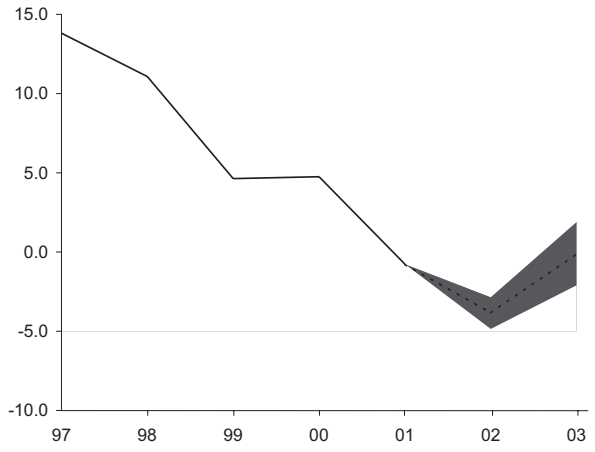


Chart 5
GROSS FIXED CAPITAL FORMATION
Year-on-year rates of change



tive effect on car sales of the change in the taxation of off-the-road vehicles. Thus, the negative change projected for 2002 — lower than that seen in 2001 in absolute figures due to the above effect — and the still negligible growth projected for 2003, corresponds to the continuing readjustment process of household expenditure. Current consumption, which is a traditionally less sensitive variable to the business cycle, is likely to record a relatively similar growth in 2002 and 2003, albeit somewhat below that estimated for 2001.

The growth rate of disposable income reflects the slowdown of around 1 p.p. of both real wages and employment. Developments projected for real wages essentially reflect their sensitivity to the cyclical fluctuations of the economy and to changes in the unemployment rate. In addition, the impact of the rise in the standard VAT rate on the inflation rate will limit the growth of real wages in 2002 and, most likely, also in 2003. It should be noted that due to the cyclical position of the economy, a significant pass-through to wages of the rise in consumer prices as a result of the VAT change is not expected to occur. The lower growth rate of employment will only partially translate into an increase in unemployment, given that the labour force is also expected to grow more slowly, as a reflection of the sensitivity of the participation rate to the business cycle. The unemployment rate will admittedly rise in 2002 and 2003 to levels close to those estimated for the natural unemployment rate.(1)

The stabilisation of the household savings rate, associated with the continuing moderate growth of private consumption, reflects two key factors. On the one hand, households will likely behave with caution in a less favourable cyclical context. On the other hand, households will need to gear part of their disposable income to meet interest payments of debts contracted in recent years, namely for house purchases. Thus, even with the technical assumptions considered in the exercise, which are characterized by historically low interest rates, the household savings rate is likely to remain stable after the recorded rises observed in the last two years.

Following the slight reduction in GFCF in 2001, a sharper decline is projected for 2002, probably followed by a close-to-zero change in 2003. The development pattern of GFCF in 2002 will continue to reflect the negative trend already showed by private investment in 2001, which will become more pronounced due to the real negative change assumed for public investment (following the significant growth of this variable in 2001). In 2003 the close-to-zero change projected for GFCF results from a slight rebound in private investment,

(1) According to the estimates of the Banco de Portugal, the natural unemployment rate is likely to stand at around 5 per cent. The concept of natural rate, which is an estimate obtained with a high degree of uncertainty, is that of an equilibrium unemployment rate compatible with the non-acceleration of consumer prices.

which is likely to offset the continuing reduction of public investment.

Developments in private investment projected for 2002 and 2003, as regards its two components, i.e. household investment in housing and corporate investment, reflect the influence of a set of factors, in particular unfavourable economic prospects. At the external level, only in 2003 will the international environment allow a recovery in the growth of relevant external demand for Portuguese exports. However, this projected recovery for external demand is still affected by a considerable degree of uncertainty. At the domestic level, the slowdown in economy, partly as a reflection of financial restraints to the pursuance of a more buoyant growth pace and the need for further fiscal consolidation efforts in a less favourable cyclical position, are also factors which tend to exert negative short-term pressure on investment decisions.

In addition, it should be taken into account that the high investment rates recorded in the recent past could not be sustained indefinitely. On the one hand, investment growth seems to have determined a rather fast expansion of the economy's capital stock, which will now be followed by lower investment levels. In recent years, corporate productive capacity increased significantly and, in view of the developments in the cyclical position of the Portuguese economy, it will not need to be strengthened in the coming years. With regard to manufacturing, the survey undertaken by the National Statistical Office (*INE*) shows a decline in the rate of productive capacity utilisation from the second quarter of 2001 onwards. Similarly, the strong sharp and fast expansion of housing is likely to contribute to some degree of readjustment of investment in housing, which seems to have already decreased in 2001.

It should also be noted that the strong growth pace of private investment determined a considerable financial effort, which was largely met through the recourse to credit. As a consequence, there was an increase in gross indebtedness levels of both corporations and households, made possible by the low level of interest rates. Inherent debt service payments, namely debt repayments, will also tend to be a factor conditioning private investment in the projection horizon.

The real change projected for exports of goods and services chiefly reflects the trend of the relevant external demand for the Portuguese economy, which results from the projections for the euro area and from the assumptions for the economic environment outside the euro area. As already mentioned, external demand is likely to record a small positive change in 2002 (around 1.4 per cent), due to rather moderate increases projected for the major economies of destination of Portuguese exports. In 2003 a significant acceleration of external demand is expected to occur (to 6.5 per cent), thus fostering exports and leading to a higher rate of growth. In addition, projected export growth includes a slight gain in market shares, following the gain estimated for 2001 and after significant cumulative losses in previous years.

As a reflection of the behaviour of overall demand in the projection period, in particular of its components with higher import content (such as corporate investment, private consumption of durable goods and exports of goods), imports of goods and services in 2002 are likely to decline somewhat in real terms. In 2003 the acceleration of exports and the slight pick-up in domestic demand, incorporating positive changes in corporate investment and the consumption of durable goods, are likely to give rise to a real positive change in imports.

As a consequence of the reduction in imports projected for 2002 and its lower relative growth compared with export growth in 2003, net exports will likely make a positive contribution to GDP growth, similarly to what was happened in 2001.

3.2. Current and capital account

Forecasts for 2002 and 2003 point to a significant decrease in external net borrowing requirements of the economy, assessed by the combined current and capital account. These developments will arise from a combined decrease in general government financing needs and a fall in private investment in 2002, followed by a slight recovery of this variable in 2003, against a background of sustained household and corporate savings.

In 2002 and 2003, both the current and capital accounts are expected to record an improvement. The decline in the current account deficit, esti-

Chart 6
EXPORTS
Year-on-year percentage rates of change

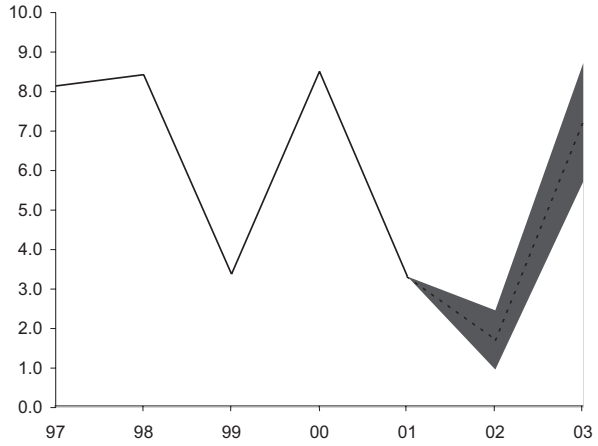
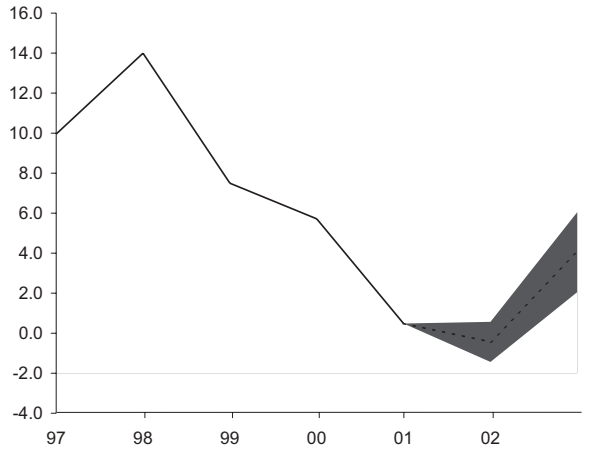


Chart 7
IMPORTS
Year-on-year percentage rates of change



mated at slightly above one percentage point of GDP, in each year, will mirror the improvement in the goods and services account, which will more than offset the expected progressive deterioration in the income account. Developments in the trade balance mainly reflect volume growths considerably stronger for exports than for imports, as mentioned above. It also reflects, albeit to a lesser extent, a slight improvement in the terms of trade — less significant than in 2001 — which is expected to be smaller between 2002 and 2003. Projections for changes in terms of trade incorporate assumptions on world oil prices and other commodity prices made by the Eurosystem as a whole.

The expected improvement in the capital account surplus in 2002 is based on the assumption that there will be a recovery in the level of capital transfers from the European Union, associated with the implementation of the Third Community Support Framework, following the relatively low value recorded in 2001. Forecasts for 2003 point to a stabilisation of this balance.

3.3. Inflation

Forecasts for 2002 suggest that the annual average rate of change of the Harmonised Index of Consumer Prices (HICP) will stand at a range between 3.5 and 4.5 per cent, compared with 4.4 per cent in 2001. For 2003 this projection exercise includes a reduction of the lower and upper limit of the target range, to 2 and 4 per cent respectively.

Between December 2001 and May 2002, the year-on-year rate of change in the HICP declined by 0.5 p.p., to 3.4 per cent. However, the increase in the standard VAT rate (from 17 to 19 per cent) will lead to a rise from June 2002 onwards, in the year-on-year rates of change in all goods and services prices that will be subject to the new VAT rate. Given that, in order to calculate the HICP, some of these prices are collected on a quarterly basis, the direct impact of the change in the VAT rate on the HICP will be observed during the quarter started in June. After this period, due to this direct effect, the year-on-year rate of change may rise by up to 0.9 p.p. An effect of similar size, but with a negative value, is expected for the corresponding period in 2003.

Apart from the change in the VAT rate, the internal and external macroeconomic environment is favourable for a decline in inflation; besides, forecasts for 2002 and 2003 suggest that specific factors that affected several food prices in 2001 will not occur. With regard to the latter, it seems that their rates of change will decline, from the abnormally high figures seen in 2001 (in fact, an adjustment was already seen in the early months of 2002).

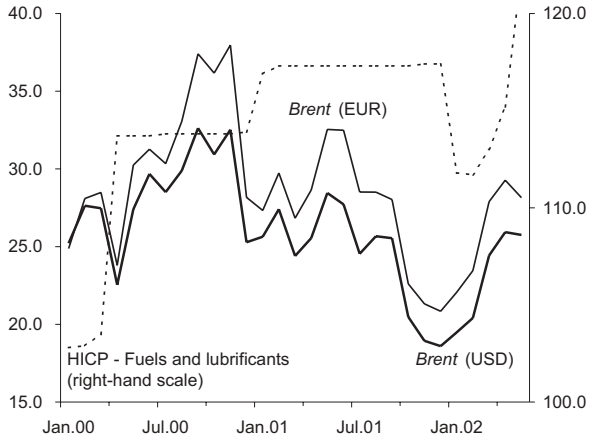
The slowdown in economic activity is likely to act as a restriction upon the increase in mark-up margins and the growth of wages. Collective agreements settled during the first months of 2002 show a small decrease in wage scales compared with the previous year, by around 0.2 p.p., to 3.7 per cent. However, this happened against a back-

ground of an annual average inflation rate of around 4 per cent (against 4.4 per cent in December 2001 and 3.9 per cent in May 2002). It should also be noted that wages settled through collective agreements are usually the lowest limit for wages actually paid given the existence of a margin between wages actually paid and wages associated with the collective bargaining. For 2002, the projected decline in the growth rate of actually paid wages in 2002 (excluding general government) is more significant than the one recorded in collective bargaining. The rate of growth of wages in the private sector is expected to evolve from 5.3 per cent in 2001 to levels slightly above those of inflation for 2002. If this reaction of actually paid wages is confirmed, as in previous periods of deceleration in economic activity, it will tend to boost the downward trend of inflation and to limit the rise in unemployment.

At the external level, the continued moderate growth in goods import prices, which stood at 0.5 per cent (0.8 per cent excluding energy) in 2001, and mainly the expected deceleration in consumer import prices in 2002, should also boost the downward trend projected for inflation. In 2001 the growth in consumer import prices stood at around 4 per cent (2.6 per cent in the previous year), and it is likely that, in 2002 and 2003, this growth will fall to around 2 per cent. The technical assumption made that exchange rates will remain unchanged over the projection horizon implies an appreciation of the euro against its average value in 2001, which contributes to the projected slowdown in import prices.

The 2002 Spring projection exercise, as mentioned in the introduction, corresponds to an upward revision of inflation projections for Portugal compared with the Autumn projection exercise published in the December 2001 issue of the *Economic Bulletin*. The revision of the projections for the inflation rate in 2002 is the result of several factors, namely the impact of tax changes. As referred to above, the increase in the standard VAT rate, from 17 to 19 per cent, will affect HICP during the period between June and August and it is estimated to contribute around 0.4 to 0.5 p.p. to the upward revision of the projected annual average rate of inflation for 2002. Sill regarding tax changes, it should be noted that current projections include the effect of changes in the *ad valorem* component of the tax on tobacco, from 23 to 32 per cent, incorporated in the Supplementary Budget for 2002.

Chart 8
EVOLUTION OF THE OIL PRICE
In USD and in EUR



The revision of the inflation rate projections in 2002 is also due to less favourable developments in consumer prices in the last two months of 2001 when compared to the Autumn projection exercise.(2) This effect has contributed between 0.2 to 0.3 p.p. to the upward revision of the average inflation rate in 2002.

Another important element underlying the upward revision of projections resulted from price developments in non-energy industrial goods during the first months of 2002 and, mainly, in service prices, whose rates of change were higher than projected.

It should also be noted that, with the changes in the price-setting regime of consumer fuels prices, these became sensitive to developments in world oil prices. Reflecting the recent increase in oil prices (see Chart 8), some of the rises recorded in 2002 illustrate this transmission mechanism. Therefore, the assumption that prices would remain unchanged for the item "fuels and lubricants" over the projection horizon, as was custom-

(2) The unfavourable performance of the inflation rate in late 2001 was not included in the Autumn projection exercise, which was based on information available up to 16 November 2001. The article published in the December 2001 issue of the *Economic Bulletin* entitled "Outlook for the Portuguese economy in 2002", mentioned that this behaviour presented risks for the 2002 projection, and this is apparently materialising.

ary in previous exercises, is no longer applicable. Current projections include an annual average figure for 2002 that is consistent with the Eurosystem assumptions for developments in the world oil prices. In spite of a fall in prices in January 2002, still due to the previous price-setting regime of fuels prices, subsequent rises, in line with oil price developments, led to an upward revision of energy prices for 2002. Forecasts for 2002 suggest that the impact of this revision on the average rate of change in the HICP will stand slightly above 0.1 p.p.

4. EVALUATION OF RISK FACTORS AND CONCLUSION

One of the main sources of risk to the projections now published is associated with uncertainties surrounding the international environment of the Portuguese economy. As mentioned in section 2, projections are based on a series of assumptions that reflect an information set available up to mid-May. If assumptions on relevant external demand for Portuguese exports, world oil prices and, more generally, if Portuguese import prices are not confirmed, significant deviations may occur in the projected paths for activity and inflation.

Despite indications of improvements in growth prospects in the main trading partners of the Portuguese economy over 2002, the more pronounced recovery trend in 2003 is obviously still subject to considerable uncertainty, partly associated with the sustained recovery in the United States.

The high volatility of world oil prices, which has been observed in the past, renders developments in this variable to be a significant risk, particularly for inflation, in a context of increased sensitivity, due to changes in the consumer fuels price regime.

Another important source of risk to growth and inflation projections is associated with additional discretionary fiscal measures that may be included in the State Budget for 2003, and which, obviously, were not taken into account in the preparation of these projections of the Banco de Portugal. As mentioned in section 3.1, there is no room for the operation of automatic fiscal stabilisers in the current less favourable stage of the economic cycle. Therefore, fiscal policy must continue to be clearly pro-cyclical due to a pressing need to correct the imbalance in public accounts.

It should also be noted that projections for activity reflect the continued gradual readjustment process of the Portuguese economy, which is largely determined by financial restraints to the maintenance of a high pace of expansion of domestic demand, associated with the high indebtedness of private economic agents. This situation implies a higher vulnerability to interest rate changes that may occur and that have not been taken into account in the technical assumptions of the projection exercise.

Finally, growth prospects and the level of increase in the unemployment rate during the projection exercise will mainly depend crucially on wage developments. If the wage moderation included in the projections does not occur, growth can be lower, due to loss of competitiveness of the Portuguese economy, and the unemployment rate may record clearly more marked rises.

All in all, there are risks to the projected economic growth. Expenditure components that typically are more affected by cyclical fluctuations, such as private investment and consumption of durable goods, will be the most affected should these risks materialise.

With regard to inflation, the risks are more balanced. In terms of external factors, world oil price developments should be highlighted as a component of high uncertainty. At a domestic level, it is possible to identify risks to inflation on both directions. On the one hand, there is the risk that the increase in the VAT rate will give rise to offsetting effects, namely, in terms of wage growth, which were not taken into account in projections. These effects would turn a temporary disturbance on the inflation rate into a more persistent phenomenon. On the other hand, risks of a higher slowdown in economic activity, if recorded, will have dampening effects on consumer prices, via profit margins and wages. Finally, if the euro continues its steep appreciation path, there may exist an additional moderating effect on the inflation rate, although with a limited impact.

CONFERENCE HELD BY THE BANCO DE PORTUGAL ON "PORTUGUESE ECONOMIC DEVELOPMENT: DETERMINANTS AND POLICIES": A PERSONAL SUMMARY*

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1. INTRODUCTION

On the 24 and 25 May 2002 the Banco de Portugal held a conference with the main purpose of encouraging economists from the academy to reflect upon the challenges of economic development in Portugal.

The main subject of the conference was the so-called "real convergence" of the Portuguese economy. The focus was on "how and where should the economy converge" rather than on "whether the economy is converging", and what role do government policies play in this process.

Economic development is a very wide and open subject. Therefore, the conference encompassed a general subject and some more specific subjects.

The general topic dealt with the analysis of overall growth and development and also with the "establishment of facts" on Portuguese real convergence. The specific subjects suggested by the hosts were as follows: Polarisation or dispersion of growth in Europe; Laws and institutions in the development process; Public finances and growth; Factor markets and growth; Human capital and growth.

This article summarises the addresses delivered at the conference as well as the main indications of economic policy they contain. This synthesis is personal and, therefore, is probably subjective. Also, it is not intended to do justice to the technical details of contributions. Above all, and paraphrasing a well-known definition of culture, it represents what the author recalls after having forgotten what he had learnt in reading the different contributions.

2. CONVERGENCE

Economic growth is important. First, for the obvious reason that through growth, citizens may aspire to a better standard of living. A differential of one percentage point (p.p.) in the average rate of growth of output would double the average standard of living in approximately two generations. But there is also a relative component in growth, i.e. Portugal's performance compared to other economies: are we getting poorer or wealthier than citizens, for instance, in Southern European countries?

The article by Pedro Lains, "Economic growth in Portugal in the long run: investment, productivity growth and structural changes in Portugal, 1910-1990," attempts to answer these questions. Among the four poorest countries in Europe-15 — Portugal, Spain, Greece and Ireland —, Portugal was the country which converged more quickly in the course of the 20th century. In particular, in the period 1913-1998, real output *per capita* grew, at an average of 2.79 per cent in Portugal, against 2.2 percent in Spain, 2.29 per cent in Greece and 2.19 per cent in Ireland. In contrast, the nine wealthier countries grew only by 2.06 per cent.

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

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However, convergence has not been uniform over time: in the period between the two wars (1913-1950) the annual convergence rate stood at 0.19 per cent; in the so-called "golden age" — the period from 1950 to 1973 — the Portuguese economy converged at an annual rate of 1.85 per cent; in the post-revolution period, the annual convergence rate declined further to 0.44 per cent. Nevertheless, even during this period, growth in Portugal stood above that in Spain and Greece and was only exceeded by that in Ireland.

The path of the economy in the course of the 20th century was, rather surprisingly, very positive. What does it tell us about the future? Can that pace of growth be extrapolated? Or, on the contrary, does the deceleration recorded in the last quarter of the last century already anticipate a profound waning of convergence?

The contribution by Pedro Pita Barros, "Convergence in productivity: Portugal and the European Union", gives a pessimistic perspective on those issues. Analysing how aggregate developments detected by Lains were reflected on the structure of Manufacturing, Barros shows that productivity in Manufacturing has grown at declining rates and, more importantly, a concentration of industrial output persists in sectors that make little investment in research and development. As these sectors are considered by the author as being of low growth in the long run, the maintenance of the specialisation pattern would impair growth dynamics.

On the contrary, according to de Freitas ("Portuguese Economic Growth: A manifest *Anti-Fado*"), there is some hope. For better or for worse, the past evolution cannot be automatically extrapolated. As in the past, it will depend on the choices made concerning policy and institutions. Illustrating his argument, Lebre de Freitas shows that in OECD and EU counties there is no inverse relationship between the initial income level *per capita* and subsequent growth: countries which are relatively poorer do not grow more rapidly and, thus, convergence in this set of relatively wealthy countries does not necessarily occur.

What is behind the different growth rates in OECD countries? What is the margin for economic policies? What policies should be favoured? The remaining contributions to the conference attempted to answer these issues. But, as an introduction, Lebre de Freitas anticipates — on an empirical basis — the significant role of factors such as the quality of human resources (measured by the availability of skilled labour force), the quality of institutions (reflected in the efficiency of justice and in bureaucracy, corruption, respect for private property and the credibility of commitments made by the State) and, finally, the flexibility of labour legislation.

3. OPENING THE BLACK BOX

More growth requires more and better inputs or a more efficient use of those prevailing. The conference provided important ideas on how this could be achieved.

3.1. Transport infrastructures

Transport infrastructures are important for development in as far as accessibility to consumer, input or knowledge markets is an important determinant of decisions on the location of economic activities.

The contribution by Armando Pires ("Economic Accessibility and Welfare: Evidence in the Iberian Peninsula"), presents indices of the economic accessibility of the different peninsular regions, reflecting the trade costs incurred. This work reveals the importance of transports and accessibility and provides a pessimistic diagnosis: given the current trade pattern, the Portuguese regions record very low accessibility indices.

There seems to be room for important improvements in accessibility; given the externalities involved, this is, in turn, a privileged area for government intervention in the economy. The importance of this intervention as a development factor has long been recognised in Portugal, and a substantial effort of public investment in transport infrastructures has been made since the late 1980s.

Transport infrastructures not only directly promote growth by facilitating a more efficient use of resources, but also have indirect effects via increasing employment and investment. Taking all these effects into account, Pereira and Andraz ("Public Investment in Transport Infrastructures and the Economic Performance in Portugal") estimate that the investment made in transport infrastructures in the 1980s and 1990s has recorded an

annual rate of return of around 16 per cent, clearly above that expected for private investment. This investment has had thus an important impact on economic growth. Breaking down investments, authors found stronger effects on output from investments in ports and in the national and municipal road network.

Besides its effect on growth potential, investment in accessibilities is frequently justified by the correction of regional disparities. António Teixeira ("Transport Policies in the Light of the New Geographical Economy: The Portuguese Experience"), analyses investment in transport infrastructures in this perspective. The reduction in transportation costs induced by these investments does not necessarily lead to the regional dispersion of industrial activities. There is a critical threshold which has to be overcome, otherwise there might be an intensification of industrial polarisation. Investment made in Portugal over the last decades of the last century was not sufficient to overcome that threshold. However, the author estimates that the pursuance of the prevailing expansion plan of the road network will lead, in the future, to a more balanced distribution of economic activities.

It is interesting to note that, using a different methodology, the mentioned article by Armando Pires also indicates how a reduction in trade costs leading to what he calls "a more complete Iberian integration" will not bring greater geographical equality. On the contrary, it will tend to benefit mainly those regions which are already more advanced, inter alia, Lisboa e Vale do Tejo.

These effects, perhaps paradoxical in the light of common sense, should be seen in perspective, since there is no evidence that sustained economic growth benefits from a uniform geographical distribution of economic activities. The decrease in the regional inequality is, strictly speaking, an extra economic purpose.

3.2. Human Capital

The connection between education and economic growth has been obvious for economists since the beginning of their Science. Even Adam Smith had argued that public money should be invested in education on the basis that benefits from education are felt by not only those who benefit from it but also by society as a whole (c.f., Gylfason, 1999, page. 21 and citations contained therein).

We have already seen in Lebre de Freitas how quality of human resources measured by an index of skilled labour availability is an important explanatory factor of different growth paths in OECD countries. Also in Lains it is estimated that, for the period 1973-1990, the contribution of human capital (measured by the average number of years of education of the labour force) for an annual output growth of 3.9 per cent stood at 1.6 per cent, almost the same level as that of the accumulation of physical capital.

Overall, the level of education of the population increases growth potential. If this happens is because, at an individual level, more educated employees tend to be more productive. As more productive employees are better paid, it is possible to measure part of the effects of education through its effect on wages. Typically, however, this measure of private benefits will underestimate overall effects of education given the externalities mentioned in the introduction of this section. Pereira and Martins ("Education and Wages in Portugal"), acknowledged that employees in Portugal benefit from a high rate of return of education: on averages an extra year of education gives rise, in employees otherwise comparable, to an increase of wages of around 11 per cent. This is a high rate by international patterns (on average in developed countries it reaches a value of 8 per cent) and probably reflects the already mentioned relative shortage of skilled employees. This interpretation seems likely if we notice that the rate of return is particularly high for higher education (18 per cent) and, within it, for degrees in Engineering.

Typically, human capital is measured by variables related to education: years of education, rates of attendance and also expenditure in education. These measures have two obvious problems. First, they try to measure output through input without reflecting the quality of education provided at school. Second, they ignore that factors such as health may also improve the stock of human capital.

Notwithstanding that the Portuguese population in the past few years has recorded a marked convergence to EU average levels, several indicators point to a state of health below that in other countries. Similarly, the indicators of quality of

education such as secondary education graduation rates and the performance of students in international tests present low levels. To grow faster, Portugal needs to increase the stock of human capital.

On the other hand, public expenditure plays a key role in direct financing of human capital formation corresponding to virtually all the expenditure in education and to almost two-thirds of the expenditure in health. Therefore the question is whether it is necessary to make heavier investments or whether, on the contrary, funds should be more efficiently used. St. Aubyn ("Assessment of Efficiency in Portugal in Health and Education Sectors"), analyses precisely this question giving a clear answer: the improvement of human capital in these two dimensions does not necessarily require higher investments, but rather structural changes making its use more efficient.

3.3. Labour Market

As Traça remarks in his contribution "Labour Markets in Portugal: Recent Performance and Challenges for Development in the European Framework", a fundamental trend for labour markets in industrialised countries is the increase in the volatility of labour demand. In a context in which employment requirements will change considerably in terms both of location (company, industry or region) and of skills, it is crucial to have a smooth functioning of the labour market in order to avoid unemployment and ensure an efficient allocation of work to different industries and firms.

Traça identifies two critical factors for success: flexibility and adaptability. Flexibility refers to the ability of real wages to adjust, by reacting to the market signals so as to avoid mismatches between wage and productivity developments and unemployment. In this respect, past experience of wage setting mechanisms in Portugal — translated into a low unemployment rate — provide positive expectations.

The situation is less favourable concerning "adaptability". The low unemployment rate conceals high long-term unemployment and a reduced labour flows both among jobs and between unemployment and employment (vide Blanchard and Portugal, 2001). In the core of this stagnation is an extremely protectionist labour legislation and the low efficiency of the matching between the unemployed and employers.

The evidence of the mismatch between employees and employers in terms of qualifications provided by Santos and Oliveira ("Qualifications Required and Qualifications Provided in Portugal, 1985-1997"), supports the view of a stagnant labour market and of the poor efficiency of active employment policies. The mismatch between qualifications of employees and market requirements is the source of significant productivity losses which, according to the estimates of Santos and Oliveira, may reach 5 per cent in the case of over-qualification for the function carried out.

It is interesting to note that market mechanisms seem to find ways to operate, even in adverse legal contexts, so as to respond to employer and employee requirements. A good example is the evolution of temporary contracts from their primitive function — a response to temporary employment requirements — to become an important factor of labour market flexibility, in particular concerning a more efficient employee-employer matching (vide José Varejão, "Temporary Contracts, Employment Flows and Productivity").

The aforementioned work by Daniel Traça isolates three fundamental elements to promote the adaptability of the labour force. Two are related to the educational system — both formal and lifelong — and the other to institutional changes. First, the education of labour force, intended to ensure the ability of learning new tasks. Then, the easiness of hiring and firing which ensures the easy flow of resources to sectors in relative expansion. Finally, active employment policies which improve the matching and ensure the professional training of the unemployed.

The need for "adaptability" — understood as the ability to react prompt and efficiently to market signals — is not confined to the labour market. The adoption of "flexible production technologies", which enable adjustments in the output mix at low cost, may have significant effects on overall productivity as it is documented in Faria and Bruce ("Technological Flexibility and Efficiency: Evidence from Portuguese Manufacturing Industry using a stochastic frontier approach").

3.4. Institutions

Today there is a consensus among economists on the importance of institutions for economic growth. However, which institutions are important and why are they important is less consensual. The most important channel through which institutions may influence growth is the impact on costs and uncertainties associated with economic transactions. Typically, economic agents have imperfect and asymmetric information, are involved in transactions that involve a great number of agents making the co-operation hard. In such a world, institutions — legal or other, such as mere rules of conduct — are important, as they reduce the costs of obtaining information, negotiation and implementation of contracts.

José Tavares ("Companies, Financial Markets and Laws: Institutions and Economic Growth in Portugal") considers that the degree of development of the Portuguese institutions vis-à-vis those in other countries in areas such as the legal system, the internal organisation of companies and the financial system, may be highly responsible for the low level of income *per capita* and the modest convergence rate.

It is, however, at the level of legal and judicial systems that higher gains in terms of growth potential may be recorded. The aggregated indicators considered by Tavares — Rule of Law, Risk of Breach of Contracts, Risk of Expropriation, Access to Justice, Efficiency of the Judicial System, Corruption and Compliance with Contracts — registered levels below the EU average and the "Asian tigers". The differences are mainly pronounced concerning the indices of efficiency of the judicial system and compliance with contracts. In particular, the length of judicial procedures in Portugal is the longest of the sample. As an illustration, the procedure of collection of a cheque without provision takes almost twice the time of the EU average.

The inefficiency of the judicial system is also confirmed by the business survey carried out by Célia Cabral and Armando Bacelar ("Justice and its Impact on Portuguese Companies"). The survey reveals that, for the companies surveyed, the major problem of the Portuguese judicial system is its lack of celerity reflected, in particular, in time-consuming legal proceedings. The assessment is also very negative with regard to access costs. In short, the large majority of companies (88 per cent) considers the judicial system as "bad" or "very bad", i.e. slow and expensive.

4. CONCLUDING REMARKS AND POLICY IMPLICATIONS

Sustained economic growth is not mainly the result of exogenous factors such as technology or resources. If we compare the evolution in the course of the second half of the 20th century of countries initially as similar as Eastern Germany and Western Germany, Austria and the Czech Republic, China and Taiwan or Northern Korea and Southern Korea, we immediately realise the importance of economic regimes, institutions and policies. An important conclusion to be drawn from the conference is, therefore, the importance of choices made by societies, i.e. by all of us as citizens.

Most policies proposed are of an "horizontal" nature, i.e. directed to the fundamentals of economic growth. Among the intervention areas discussed in the conference, I would point out four: infrastructures, educational system, labour market and judicial system.

i. It is necessary to pursue the effort of improving transport infrastructures. However, I would emphasize two points. In the early 1980s little had been done and, therefore, it was possible to obtain the high rates of return estimated in Marvão and Andraz. Presently, it is absolutely necessary to be more selective. But genuinely productive investments pay themselves through additional tax revenues and, therefore, do not generate pressures on the public debt.

ii. The situation of the educational system — either formal or vocational training or even life-long training — is a cause of concern. The problem is not a result of the lack of investment in education, since it has accompanied the evolution of more advanced countries. It is the return of that investment that must be questioned, because no clear results are being obtained (c.f., St. Aubyn and Pereira and Martins). The problem does not seem to lie in the contents, although some authors have emphasized the need for

higher levels of exigency in subjects like English, sciences and mathematics (e.g., St. Aubyn). Still on the contents of formal education, stress was also laid on the need to ensure sound general competencies, of a wide spectrum, which facilitate the adjustment to a constantly evolving market requirements (c.f., Traça).

iii. As outlined by several contributions, the problem of the educational system lies mainly on its the failure to recognize and reward the merit of schools, teachers, and students (e.g., St Aubyn). Such a new culture would imply an increase in school autonomy and a strengthening of competition mechanisms among them. The key idea should be "experimentation and evaluation", i.e. to refuse global "top-down" reform projects, but instead, allow competition — with evaluation and accountability — among several curricular and governance models.

iv. It is necessary to evaluate the results of public investment in vocational training.

v. The labour market needs reforms which liberalise the employment protection legislation, namely on collective dismissal for economic reasons and on procedural impediments to individual dismissal (c.f., Traça, 2002). During this liberalisation process it is important not to destroy the few flexibility elements existing in the current framework, such as temporary contracts, without having created alternatives (vide, Varejão).

vi. The suggestions for legal and judicial reforms arising from the diagnosis carried out (vide, Tavares and Cabral and Pinheiro) indicate that, in general, Portugal does not seem to need more laws or new ones, but rather a firm and prompt enforcement of the existing legislation. The excessive trend to legal formalism results in a loss of efficiency affecting growth without clear benefits in terms of citizens' rights.

The implementation of the proposals presented in this article naturally involves (material, social and political) costs and the — perhaps uncertain — results have a medium and long-term horizon. They assume a wide consensus at the political level as to the diagnosis and therapy to be adopted. But, only in this way may Portuguese acquire a renewed dynamics of sustainable development.

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CYCLICAL BEHAVIOUR OF THE PORTUGUESE ECONOMY: 1953-1995*

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*Pedro Duarte Neves***

1. INTRODUCTION

This paper describes some empirical regularities in Portuguese macroeconomic time-series over the period 1953-1995, using the very detailed dataset of Pinheiro *et al* (1999). This task is carried out by examining the relationship between the aggregate cycle and the cyclical behaviour of various economic series, such as production, expenditure, external accounts, labour market, productivity, savings, income distribution and monetary variables. This study follows previous research conducted at Banco de Portugal on the Portuguese business cycle, i.e. Correia *et al* (1992), Dias (1997) and Neves and Belo (2002), but with a considerable larger degree of detail in the number and variety of economic series considered.

This paper is organised as follows. Section 2 describes the data. Section 3 highlights the main stylised facts of Portuguese business cycles. Finally, section 4 concludes.

2. THE DATA

This paper uses the annual data for the Portuguese economy over the period 1953-1995, published in Pinheiro *et al* (1999). Most variables were expressed in *per capita* terms. In addition, quantity measures (Gross Domestic Product (GDP), expenditure components, employment, real wages, real disposable income, real monetary aggregates, etc.) were studied after taking their logarithms. Nominal variables were expressed in constant prices, using the specific deflator when available, the GDP deflator (in the case of monetary variables) or the private consumption deflator (for compensation of employees, disposable income variables and savings). Variables expressed as ratios (the unemployment rate, external balances, the savings ratio, amongst others) were used without further transformation. The annex presented at the end of the paper provides a statistical description of the variables analysed.

To analyse the cyclical behaviour of the selected economic series, it is necessary to breakdown the observed series into their main components: trend and cycle. For that purpose, we use the Hodrick-Prescott filter, widely used in business cycle analysis. A smoothing parameter of 100 was selected, as this is a fairly standard choice for annual data.

Chart 1 presents *per capita* values (logarithms) of both observed output and trend output. This chart highlights that real GDP growth was markedly different in the first half and in the second half of the sample. Empirical evidence on that is provided in Botas, Marques and Neves (1998). Dias (1997) presents a very interesting discussion on the cyclical regularities in the two sub-samples, issue that will not be addressed in this paper.

Chart 2 presents the cyclical component of GDP throughout the sample period. It is worth mentioning the following main results. First, up to beginning of the 70's, economic cycles show a less regular pattern; only from then onwards reasonably long and regular economic cycles are observed. The most negative components of the cy-

* The views expressed in this article are those of the authors and not necessarily those of the Banco de Portugal.

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Chart 1
GROSS DOMESTIC PRODUCT AND TREND

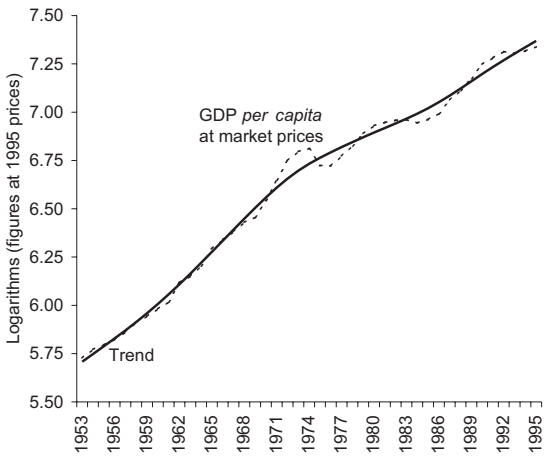
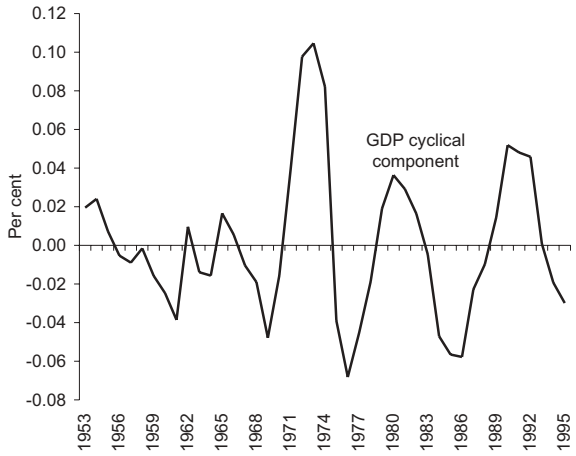


Chart 2
CYCLICAL BEHAVIOUR



clical component of GDP — the troughs — were observed in 1961, 1969, 1976, 1986 and 1995 (-3.9, -4.8, -6.8, -5.8 and -3.0 per cent, respectively). The most positive components of the cyclical component of GDP — the peaks — were observed in 1954, 1962, 1965, 1973, 1980 and 1990 (2.4, 1.0, 1.7, 10.5, 3.6 and 5.2 per cent, respectively). As it is well-known, estimates of the cyclical component at the very beginning (end) of the sample period are subject to potentially sizeable measurement errors when the Hodrick-Prescott filter is used.

3. STYLISED FACTS OF PORTUGUESE BUSINESS CYCLES

This section describes the most salient features of the Portuguese economic cycles, for selected groups of economic variables. The following descriptive statistics will be analysed:

- standard deviation of the cyclical component of each of the series (absolute and as a proportion of the standard deviation of the cyclical component of GDP when the series are expressed in the same unit);(1)
- autocorrelation coefficients for the cyclical component of each variable;
- cross-correlation coefficients (contemporaneous, leading and lagging) of the cyclical component of each series with the cyclical component of real GDP; a (large) positive correlation indicates pro-cyclical behaviour, whereas a (large) negative correlation indicates counter-cyclical behaviour.

These descriptive statistics are reported in Table 1, in the same order as the one followed in this section. Chart 3 presents the cyclical component of real GDP (dashed line) and the cyclical component of each series analysed (thick line).

a) Activity in the different productive sectors

Activity in the different productive sectors moves in line with the aggregate cycle. There is a very strong positive correlation between activity in industry, construction and services with the cyclical component of real GDP. The maximal correlations are the contemporaneous ones (figures of 0.86, 0.75 and 0.88, respectively). Chart 3 illustrates clearly the very high degree of cyclical synchronization between real GDP and value added of the industrial and services sectors, particularly in the second half of the sample.

Activity in the primary sector (agriculture, forestry and fishing) is relatively volatile and exhibits

(1) In the case of series that are expressed in logarithms, the units correspond to deviations (expressed in per cent) from trend paths; in the case of variables that are expressed as ratios, the units also correspond to deviations from trend paths (but expressed in percentage points).

Table 1 – (to be continued)

DESCRIPTIVE STATISTICS OF THE MACROECONOMIC VARIABLES CONSIDERED

Per capita values at 1995 prices (logarithms)

	Measurement unit	Standard deviation	sd(x) / /sd(GDP)	Autocorrelation coefficient		Correlation coefficient between x (t) and GDP($t + i$)				
				-1	-2	i=-2	i=-1	i=0	i=1	i=2
GDP at market prices	constant prices	0.039	1.00	0.68	0.13	0.13	0.68	1.00	0.68	0.13
a) Activity in the different productive sectors										
Sectoral desegregation of Gross Value Added										
Agriculture, forestry and fishing	constant prices	0.065	1.65	0.35	0.01	0.06	0.26	0.49	0.29	0.00
Industry	constant prices	0.057	1.45	0.53	0.05	0.07	0.56	0.86	0.56	0.14
Construction	constant prices	0.093	2.36	0.62	0.05	0.07	0.52	0.75	0.58	0.10
Services	constant prices	0.027	0.69	0.69	0.11	0.15	0.66	0.88	0.61	0.07
b) Expenditure components										
Private consumption	constant prices	0.040	1.01	0.61	0.10	0.28	0.76	0.91	0.51	0.00
Private consumption of non-durables	constant prices	0.047	1.20	0.57	0.07	0.20	0.68	0.84	0.48	0.09
Private consumption of services	constant prices	0.034	0.85	0.43	-0.07	0.28	0.59	0.66	0.33	-0.25
Private consumption of non-durables and services	constant prices	0.036	0.92	0.59	0.06	0.25	0.74	0.90	0.50	-0.02
Private consumption of durables	constant prices	0.094	2.37	0.62	0.16	0.30	0.66	0.74	0.43	0.09
Public consumption	constant prices	0.040	1.02	0.46	-0.07	0.20	0.43	0.51	0.29	-0.04
Investment	constant prices	0.104	2.63	0.58	0.03	-0.03	0.42	0.81	0.71	0.28
Gross Fixed Capital Formation (GFCF)	constant prices	0.102	2.58	0.57	0.07	0.15	0.58	0.79	0.50	0.03
GFCF (machinery)	constant prices	0.103	2.62	0.58	0.00	0.21	0.63	0.77	0.42	-0.04
GFCF (transport equipment)	constant prices	0.144	3.64	0.39	0.10	0.12	0.30	0.39	0.35	0.22
GFCF (construction)	constant prices	0.120	3.04	0.47	0.02	0.11	0.49	0.69	0.40	-0.06
Change in inventories (as a % of GDP)	% GDP	0.014	-	0.12	-0.13	-0.37	-0.30	0.07	0.44	0.51
Domestic demand	constant prices	0.052	1.31	0.66	0.13	0.14	0.64	0.93	0.66	0.15
Exports of goods and services	constant prices	0.080	2.03	0.61	0.14	-0.02	0.38	0.65	0.51	0.18
Exports of goods	constant prices	0.084	2.12	0.62	0.12	-0.03	0.32	0.55	0.44	0.18
Exports of services	constant prices	0.102	2.59	0.43	0.04	0.01	0.42	0.70	0.52	0.13
Exports of consumption goods	constant prices	0.088	2.24	0.67	0.22	-0.07	0.32	0.55	0.46	0.16
Exports of non-durable consumption goods	constant prices	0.088	2.23	0.66	0.22	-0.10	0.28	0.55	0.47	0.19
Exports of durable consumption goods	constant prices	0.173	4.39	0.65	0.34	0.14	0.38	0.40	0.28	0.09
Exports of investment goods	constant prices	0.140	3.55	0.36	-0.21	0.11	0.39	0.49	0.29	-0.05
Exports of intermediate goods	constant prices	0.084	2.14	0.56	0.15	0.02	0.22	0.38	0.28	0.12
Exports of energetic goods	constant prices	0.436	11.05	0.22	0.03	0.05	0.27	0.37	0.26	0.15
Overall demand	constant prices	0.050	1.26	0.68	0.15	0.11	0.64	0.96	0.70	0.18
Imports of goods and services	constant prices	0.092	2.32	0.52	0.06	0.08	0.50	0.77	0.62	0.22
Imports of goods	constant prices	0.090	2.28	0.52	0.11	0.04	0.43	0.75	0.64	0.29
Imports of services	constant prices	0.165	4.17	0.50	-0.05	0.27	0.61	0.59	0.32	-0.10
Imports of consumption goods	constant prices	0.159	4.04	0.61	0.39	0.40	0.51	0.51	0.28	0.06
Imports of non-durable consumption goods	constant prices	0.166	4.21	0.47	0.25	0.35	0.35	0.37	0.22	0.07
Imports of durable consumption goods	constant prices	0.196	4.97	0.64	0.33	0.39	0.62	0.60	0.30	0.03
Imports of investment goods	constant prices	0.140	3.54	0.47	-0.01	-0.06	0.36	0.69	0.60	0.27
Imports of intermediate goods	constant prices	0.082	2.08	0.36	-0.09	-0.14	0.26	0.65	0.63	0.32
Imports of energetic goods	constant prices	0.069	1.74	0.46	0.20	-0.01	0.32	0.64	0.70	0.46
Net imports of goods	constant prices	0.357	9.05	0.46	-0.10	-0.04	0.19	0.37	0.37	0.17

Table 1 (continued)

DESCRIPTIVE STATISTICS OF THE MACROECONOMIC VARIABLES CONSIDERED

Per capita values at 1995 prices (logarithms)

	Measurement unit	Standard deviation	sd(x) / / sd(GDP)	Autocorrelation coefficient		Correlation coefficient between x (t) and GDP ($t + i$)				
				-1	-2	i=-2	i=-1	i=0	i=1	i=2
c) External accounts										
Current account as a % of GDP										
Current account	%GDP	0.028	-	0.43	-0.09	-0.42	-0.17	0.11	0.29	0.32
Goods and services	%GDP	0.025	-	0.43	-0.05	-0.35	-0.30	-0.14	0.05	0.17
Goods	%GDP	0.020	-	0.41	-0.04	-0.21	-0.26	-0.25	-0.09	0.07
Services	%GDP	0.009	-	0.45	0.00	-0.47	-0.23	0.19	0.32	0.28
Income balances	%GDP	0.007	-	0.76	0.38	-0.12	0.13	0.33	0.37	0.36
Transfer balances	%GDP	0.008	-	0.61	0.10	-0.27	0.21	0.50	0.51	0.29
d) Employment, unemployment and productivity										
Labour force	thousands	0.010	0.24	0.63	0.08	-0.23	0.23	0.52	0.51	0.24
Total employment	thousands	0.015	0.38	0.66	0.12	0.09	0.59	0.78	0.57	0.13
Sectoral employment										
Agriculture, forestry and fishing	thousands	0.020	0.51	0.37	0.05	-0.26	-0.56	-0.53	-0.32	0.04
Industry	thousands	0.028	0.71	0.69	0.14	-0.07	0.41	0.63	0.50	0.15
Construction	thousands	0.061	1.54	0.67	0.09	0.14	0.46	0.53	0.32	-0.14
Services	thousands	0.021	0.52	0.76	0.33	0.18	0.60	0.73	0.56	0.26
Unemployment	thousands	0.188	4.76	0.61	0.06	-0.29	-0.68	-0.72	-0.37	0.09
Unemployment rate	percentage	0.008	-	0.67	0.14	-0.39	-0.76	-0.77	-0.41	0.04
Apparent labour productivity	constant prices	0.023	0.59	0.55	0.06	0.08	0.54	0.89	0.58	0.08
Agriculture, forestry and fishing	constant prices	0.071	1.79	0.38	-0.04	0.10	0.32	0.51	0.29	-0.03
Industry	constant prices	0.039	0.98	0.28	-0.03	0.10	0.38	0.64	0.35	0.09
Construction	constant prices	0.052	1.33	0.42	0.10	-0.08	0.27	0.55	0.53	0.31
Services	constant prices	0.020	0.50	0.66	0.24	-0.07	0.03	0.12	0.02	-0.22
e) Wages, disposable income and savings										
Total compensation of employees	constant prices	0.054	1.36	0.72	0.30	0.53	0.72	0.63	0.34	0.00
Total compensation per employee	constant prices	0.047	1.19	0.66	0.20	0.53	0.45	0.25	0.06	-0.07
Disposable income	constant prices	0.048	1.22	0.71	0.21	0.43	0.79	0.82	0.50	0.01
Savings of the private sector (households and corporations)	constant prices	0.122	3.08	0.49	-0.10	-0.39	0.18	0.68	0.71	0.39
Savings of households and private administrations	constant prices	0.186	4.70	0.10	0.17	0.21	0.39	0.37	0.30	0.09
Households' savings rate (as a % of disposable income)	percentage	0.021	-	0.12	-0.03	0.16	0.27	0.27	0.31	0.11
f) Income distribution										
Total compensation of employees	constant prices	0.054	1.36	0.72	0.30	0.53	0.72	0.63	0.34	0.00
Gross operating surplus	constant prices	0.098	2.47	0.57	-0.13	-0.41	0.18	0.68	0.62	0.26
Labour share	%GDP factor costs	0.028	-	0.57	-0.04	0.59	0.20	-0.25	-0.33	-0.20
Profit share	%GDP factor costs	0.028	-	0.57	-0.04	-0.59	-0.20	0.25	0.33	0.20
g) Monetary variables										
Monetary base (real)	constant prices	0.191	4.84	0.52	0.05	0.41	0.54	0.41	0.17	-0.13
M1 (real)	constant prices	0.065	1.64	0.61	0.16	0.25	0.51	0.47	0.31	0.03
M2 (real)	constant prices	0.057	1.45	0.67	0.21	0.40	0.72	0.74	0.44	-0.04
Credit to non-financial corporations and households	constant prices	0.067	1.70	0.65	0.22	0.43	0.56	0.46	0.11	-0.34

Chart 3 (to be continued)

CYCLICAL COMPONENTS

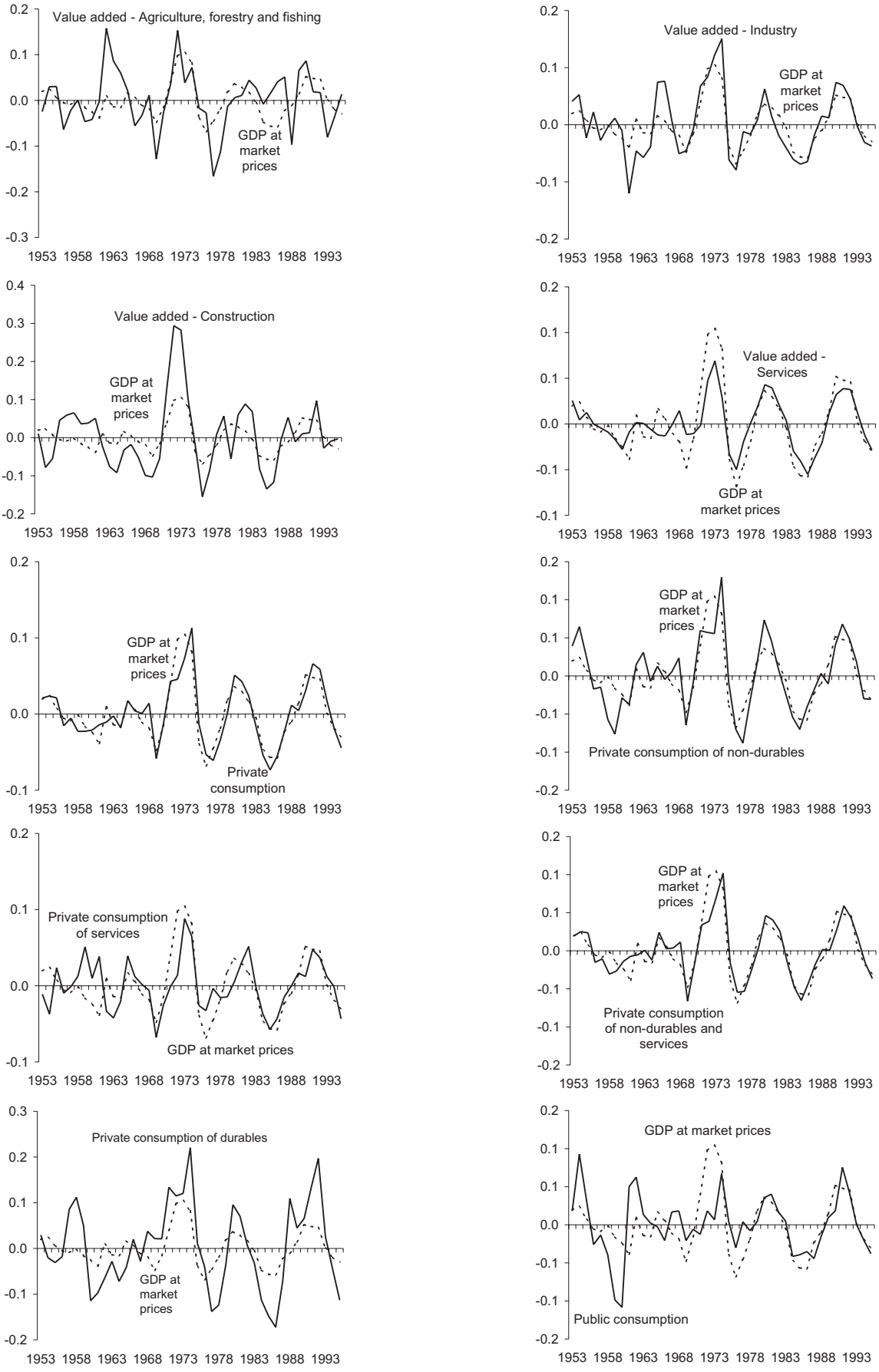


Chart 3 (continued)

CYCLICAL COMPONENTS

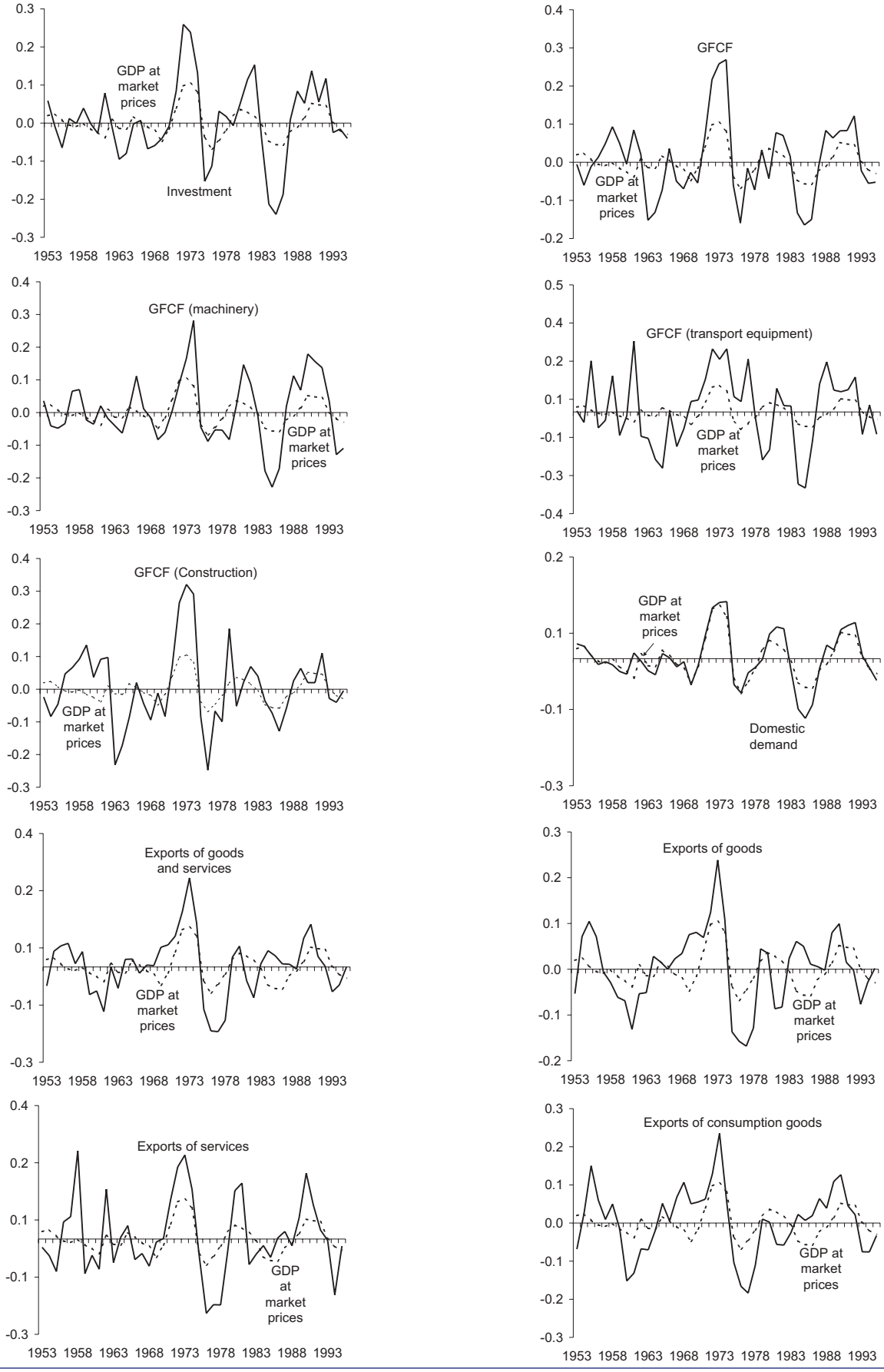


Chart 3 (continued)

CYCLICAL COMPONENTS

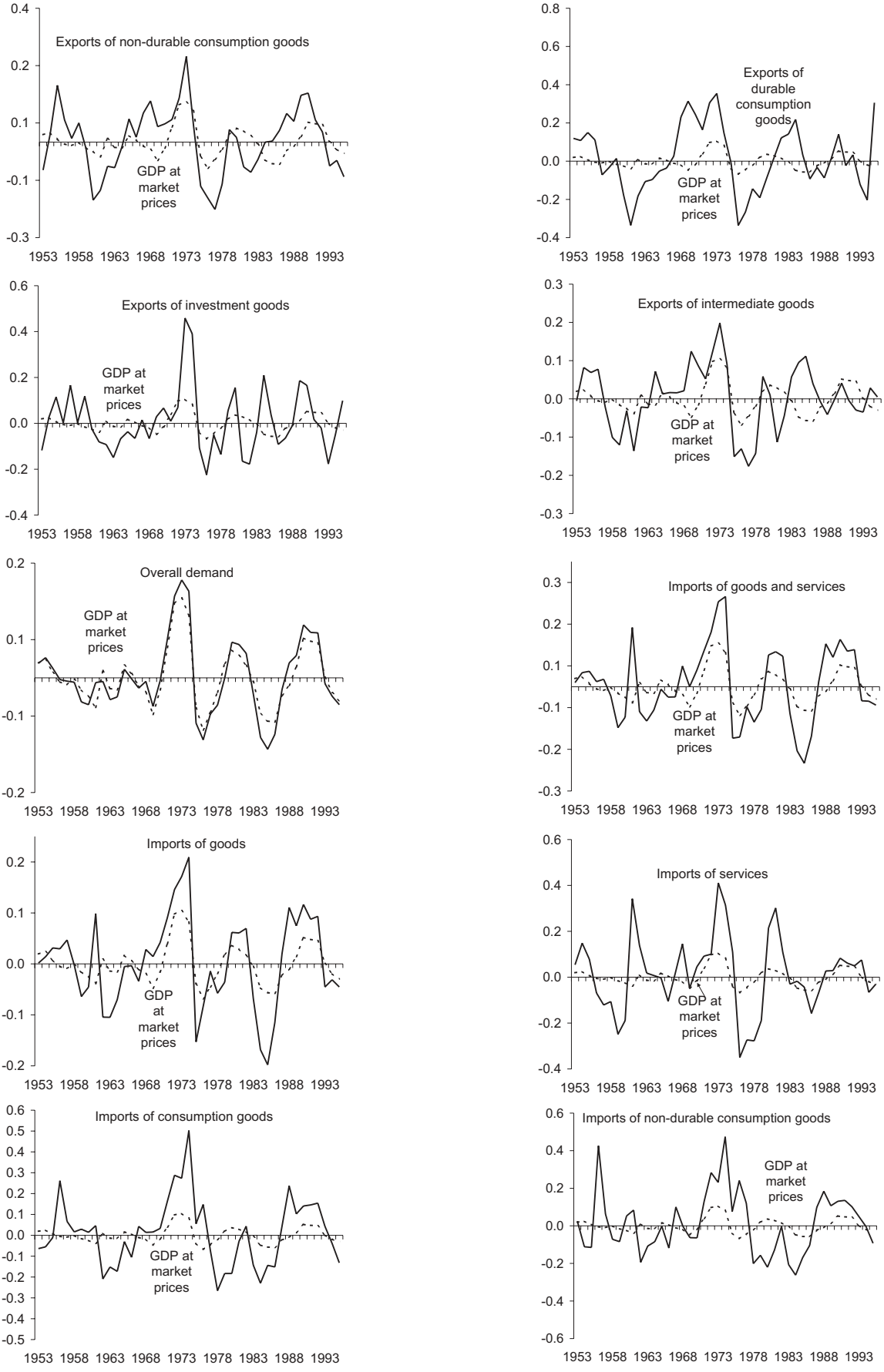


Chart 3 (continued)

CYCLICAL COMPONENTS

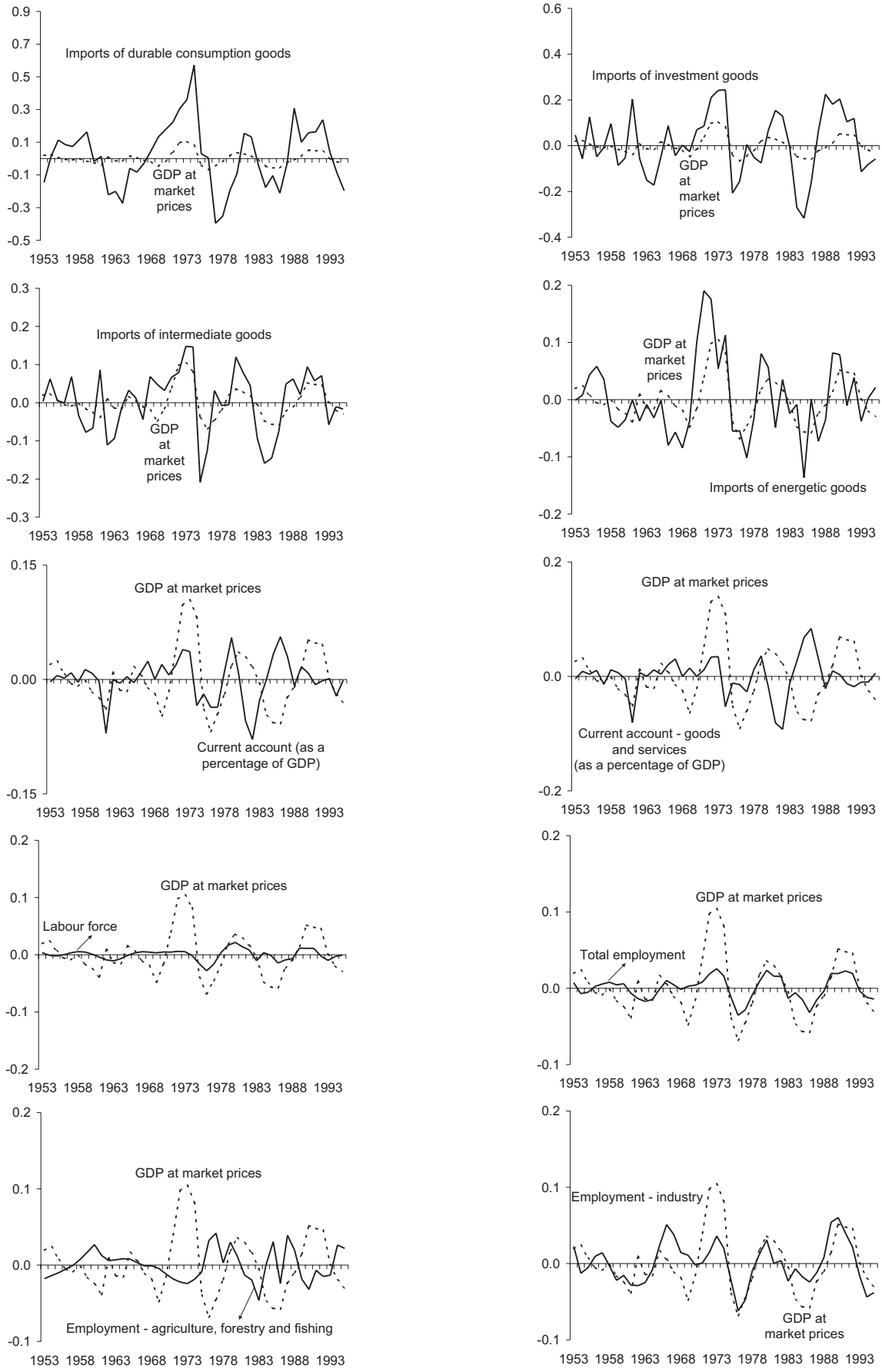


Chart 3 (continued)

CYCLICAL COMPONENTS

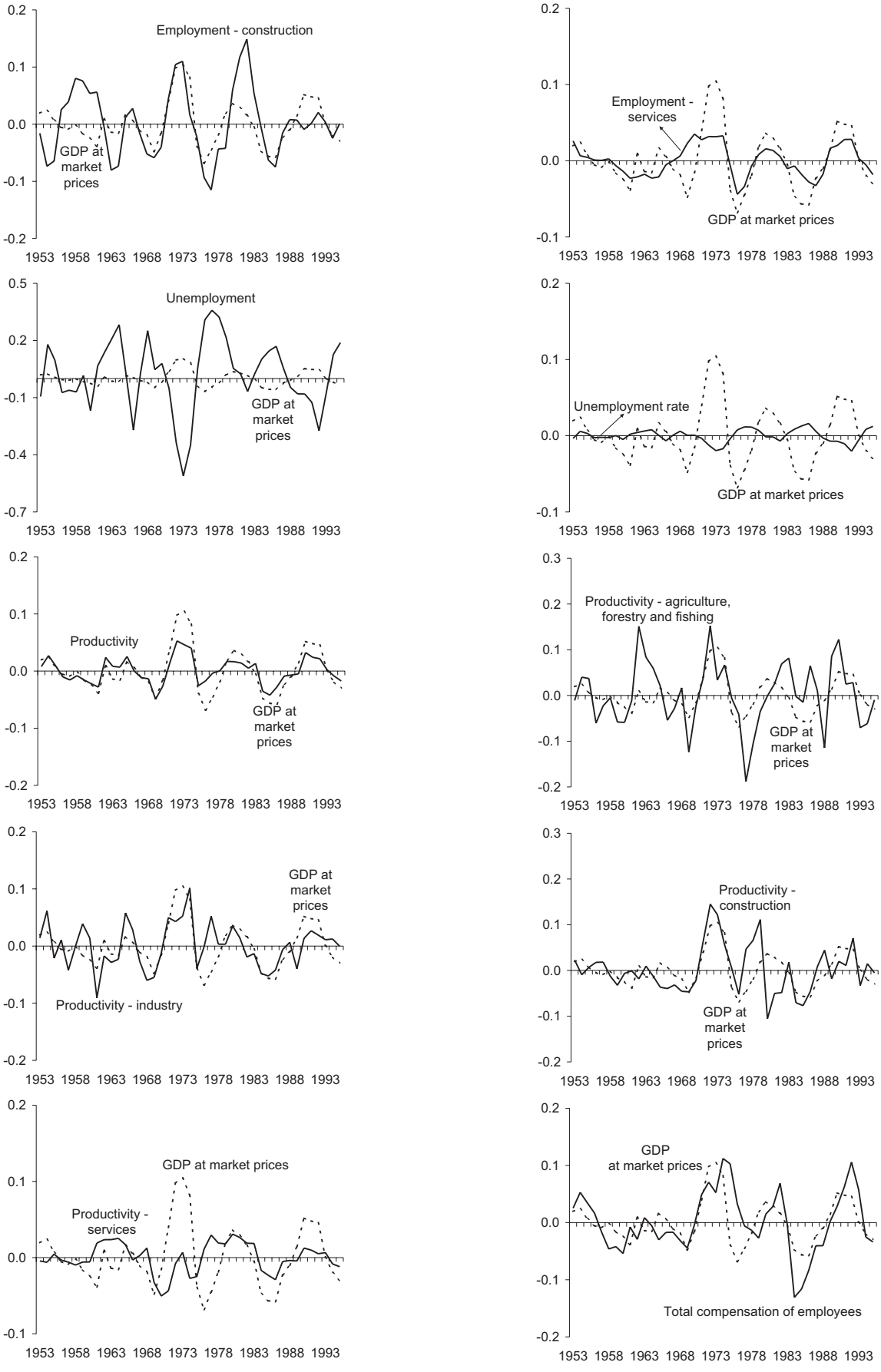
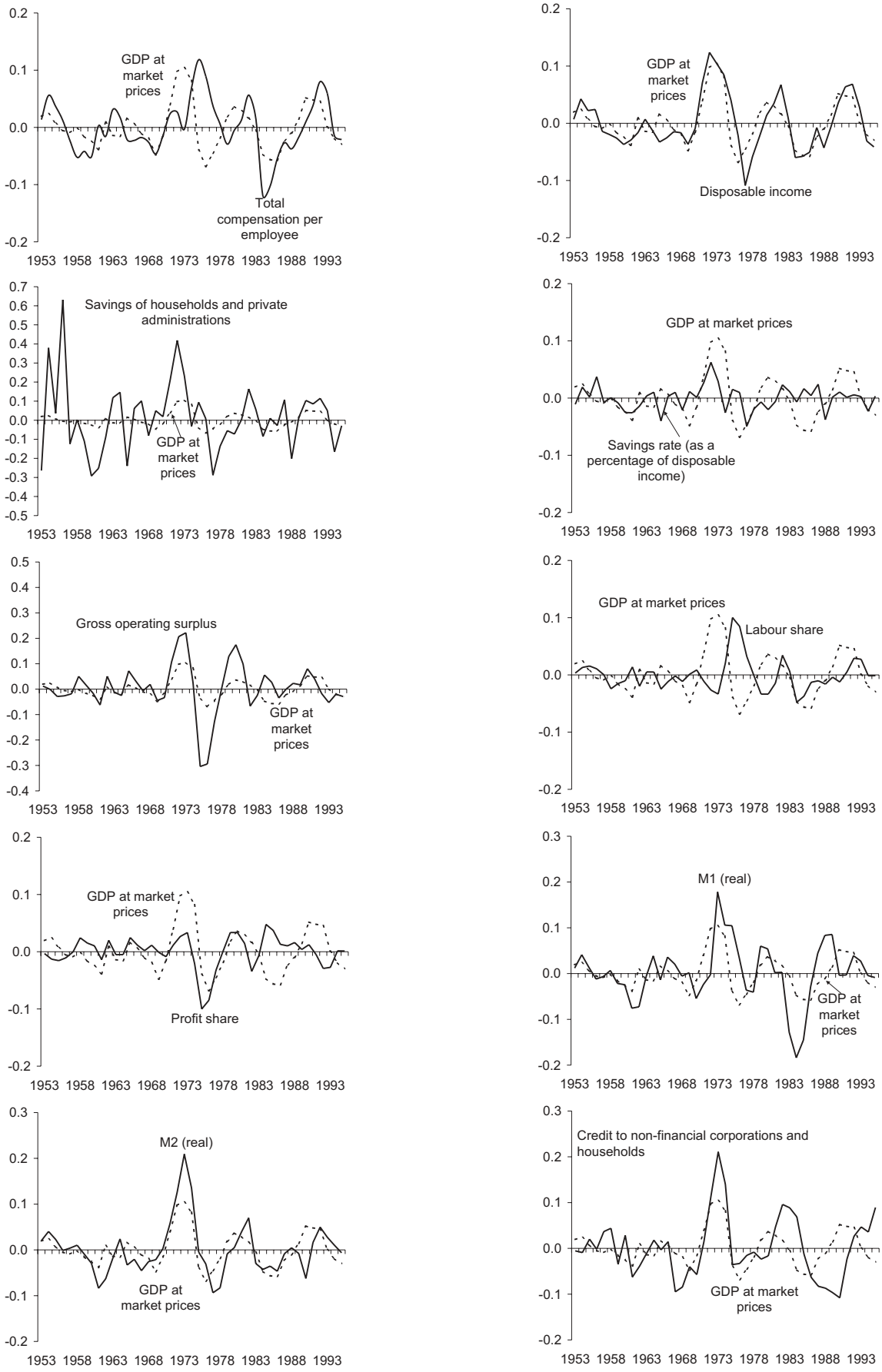


Chart 3 (continued)

CYCLICAL COMPONENTS



a very low persistence, as one could expect given the nature of the factors that affect agricultural output. It is also pro-cyclical, even if with a lower degree of statistical association than the ones obtained for the remaining sectors. Manufacturing activity is strongly pro-cyclical and with a variability approximately 1.5 times the one of the cyclical component of GDP. Activity in construction is remarkably volatile and strongly pro-cyclical. Finally, the cyclical component of activity in services is less volatile than the one of GDP, is the more persistent and is strongly correlated with the aggregate cycle.

It is worth pointing out that very important changes in the productive structure took place over this period. The weight of the primary sector on Gross Value Added declined dramatically from 28.9 per cent in 1953 to 6.5 per cent in 1995. In the cases of industry (decline from 27.4 to 27.3 per cent) and building and construction (increase from 5.8 to 6.7 per cent) the changes were relatively small. In the case of services, the weight in Gross Value Added increased from 37.9 per cent in 1953 to 59.5 per cent in 1995.

b) Expenditure components

Private consumption and gross fixed capital formation are strongly pro-cyclical. The contemporaneous correlation between the respective cyclical components and the one of GDP is 0.91 and 0.79, respectively. In the case of public consumption the correlation is 0.51.

Private consumption moves approximately coincidently with the aggregate business cycle. However, the cyclical behaviour of its components — services, durables and non-durables — is not uniform, displaying some interesting features. Consumption of services is less volatile than output over the cycle, whereas the consumption of non-durables is slightly more volatile than output. The aggregate of these two components of private consumption is less volatile than output — and even less so than the cyclical component of disposable income — which is consistent with the smoothing implied by the permanent income hypothesis. Consumption of durables, as measured by purchases and not the service flow of those goods, is considerably more volatile than output (around 2.4 times). This is consistent with the fact that purchases of this type of goods are usually concentrated on good economic times. Chart 3 illustrates the very high volatility of the consumption of durables, as well as the high degree of cyclical synchronization between real GDP and all the categories of consumption. It is also worth mentioning that the synchronization between the cyclical components of GDP and consumption increased in the second half of the sample, a result already pointed out in Dias (1997).

It is also worth mentioning that, for aggregate consumption as well as for each one of the three components considered, the correlation with the cyclical component of t-1 GDP is clearly above the one with the cyclical component of t+1 GDP. This suggests that for a quarterly frequency of the data, one could find that private consumption peaks somewhat later than real GDP, probably reflecting the lagging behaviour of labour market variables and their influence on real disposable income.

Public consumption also presents a reasonably strong correlation with real GDP. The volatility of the respective cyclical components is nearly the same as the one of real GDP.(2) The synchronization of the series increased substantially in the second half of the sample period.(3)

Gross Fixed Capital Formation is strongly pro-cyclical and very volatile, as its cyclical component is some 2.6 times more volatile than the cyclical component of GDP. These results hold for the main components of Gross Fixed Capital Formation, i.e. machinery, transport equipment and building and construction. It is worth mentioning that investment in transport equipment is the least strongly correlated with contemporaneous real GDP as well as the most volatile. This is likely to reflect the fact that an important part of this type of investment relates to the acquisition of transport equipment for public services (aeroplanes, boats, railways equipment), not necessarily correlated with the business cycle.

In order to assess the cyclical behaviour of stocks, we estimated the cyclical component of the change in inventories, expressed as a percentage of

(2) It is worth noting that, in the case of the USA, Cooley and Prescott (1995) and Stock and Watson (1999) conclude that government non defence purchases are largely unrelated to the business cycle.

(3) See also Dias (1997).

GDP. The maximum correlation is achieved for *t*+2 indicating that the evolution of that variable can provide leading indications about the future evolution of real GDP. This result should be interpreted with caution, however, as the change in inventories, as registered in national accounts, also reflects statistical discrepancies.

Exports of goods and services are strongly correlated with real GDP, being the correlation slightly stronger in the case of services than in the case of goods. The strongest correlation is the contemporaneous one. The cyclical component of exports is twice as much volatile as the GDP one. Table 1 also presents the cyclical properties of the main components of exports of goods, i.e. consumption (durables and non-durables), investment, intermediate and energetic exports. All the components are pro-cyclical, being worth mentioning the large volatility in the case of exports of durable consumption, investment and energetic goods (in the last case, one should stress the very minor weight of this component in total exports).

It is also worth mentioning that, for total exports as well as for both exports of goods and services, the correlation with the cyclical component of *t*+1 GDP is clearly above the one with the cyclical component of *t*-1 GDP. This suggests that if we were using quarterly data, one could find that exports tend to peak somewhat earlier than total GDP, a not surprising result for a small and open economy.

Imports of goods and services are strongly correlated with output, being the correlation higher in the case of goods than in the case of services. The cyclical component of total imports is 2.3 times more volatile than the cyclical component of GDP. Table 1 also presents the descriptive statistics for the main components of imports of goods, i.e. consumption (durables and non-durables), investment, intermediate and energetic goods. The cyclical components of imports of consumption (both durables and non-durables) and investment goods display the largest volatilities. It is also worth mentioning that imports of energetic and intermediate goods have some leading properties vis-à-vis the cyclical component of GDP, whereas imports of consumption durables seem to have some lagging properties.

As we have just seen, total imports of goods and services are strongly pro-cyclical (correlation coefficient of 0.77). Exports are also pro-cyclical, but with a smaller correlation with the cyclical component of aggregate activity (correlation coefficient of 0.65). Net imports of goods — measured at constant prices — are pro-cyclical. This means that periods of higher use of productive resources (i.e. associated with higher cyclical components of GDP) tend to coincide with periods of larger trade imbalances.

c) External accounts

It is also interesting to analyse the cyclical behaviour of the current account and its main components, when expressed in percentage of GDP. The current account and the trade account are counter-cyclical, with a lag of one or two years, whereas both the income and transfer balances are pro-cyclical, leading GDP by one year.

These results are broadly in line with the evidence on international business cycles. Backus *et al* (1995), for instance, conclude that for 10 industrialised countries the contemporaneous correlation of the cyclical component of the ratio of net exports to output, both at current prices, with the cyclical component of activity is always negative. They also point out that the correlation with output varies substantially across the countries considered, from -0.01 to -0.68. The figure presented for Portugal is very close to the average figure obtained for those 10 countries. Stock and Watson (1999) also conclude that the trade balance is counter-cyclical in the USA.

d) Employment, unemployment and productivity

The labour force is pro-cyclical, being the contemporaneous correlation and the one with the cyclical component of *t*+1 GDP approximately equal, suggesting that this variable may provide some leading indications on the evolution of economic activity. The positive correlation between the cyclical components of labour force and real GDP means that stronger increases in labour participation take place in good times, probably reflecting the effect of better pay conditions.

Total employment is strongly pro-cyclical, being the largest correlation the contemporaneous one. This series does not seem to be neither leading nor lagging vis-à-vis real GDP. Sectoral em-

ployment is, with the notable exception of employment in the primary sector, pro-cyclical, being the largest correlation the contemporaneous one. Employment in agriculture, forestry and fishing is counter-cyclical, indicating that the (structural process of) transition of employment from agriculture to other activities is intensified when general conditions are more favourable. The cyclical component of employment in the construction sector is clearly more volatile than in the remaining sectors. This seems to be related with the considerable larger variability of value added in that sector, as mentioned in a).

Unemployment is strongly counter-cyclical, being the largest correlations the contemporaneous and the one with GDP lagged one period. The volatility of unemployment exceeds by large the one of employment, which is also slightly larger than the one of working population. This ranking is the expected one, given the magnitude of those variables. The cyclical properties of the unemployment rate are very similar to the ones already mentioned for the level of unemployment.

Apparent labour productivity is strongly pro-cyclical and varies less than output (0.6 times less volatile than output). This result is in line with well-known established regularities of international business cycles. See for instance Cooley and Prescott (1995), Kydland (1995), Backus, Kehoe and Kydland (1995) and Stock and Watson (1999). However, in the Portuguese case the strongest correlation is the contemporaneous one, whereas available evidence usually indicates some leading indications of productivity. For instance, Stock and Watson (1999) conclude, for the United States, that productivity has a lead of two quarters on aggregate activity. The result obtained in Portugal probably reflects the frequency of the data (i.e. annual rather than quarterly data).

Apparent labour productivity is also pro-cyclical and contemporaneously correlated with real GDP in the main sectors, even if the correlations are clearly lower than in the case of aggregate productivity. The variability of the cyclical component of productivity in the primary sector and construction clearly exceeds the one in industry. Productivity in the services sector is the least volatile. Persistence is remarkably high (low) in the services sector (primary sector and, maybe surprisingly, in industry).

e) Wages, disposable income and savings

When assessing the cyclical properties of wages — or more exactly total compensation of employees, as it includes social security contributions — it is useful to distinguish between total and per employee figures. Table 1 presents the cyclical properties for both cases. These variables are pro-cyclical and lagged in relation to the overall economic cycle, by one and two years, respectively. This constitutes a very important feature of the Portuguese labour market, which is probably related to the fact that unemployment also shows some lagging indications vis-à-vis the GDP cycle — as the larger correlations were either the contemporaneous one or the one lagged one period — which has non-negligible effects on the wage bargaining process.

The volatility of per employee wages is two times the volatility of apparent productivity. This is a clear illustration that real wages increase by more (less) than productivity in good (bad) times, as it will be also discussed in f) below.

The evolution of household disposable income is strongly pro-cyclical. The larger correlation is the contemporaneous one (correlation coefficient of 0.82) but the one lagged one period is very similar (0.79). This result is, of course, a natural implication of the already mentioned cyclical behaviour of wages and employment.

Real savings of the private sector (households and private corporations) — deflated using the private consumption deflator — are strongly pro-cyclical and peak nearly one year before GDP. Households' savings are also pro-cyclical, but their correlation with GDP is not so strong. The strongest correlation of this variable is either the contemporaneous one or the one lagged one period in relation to GDP. Households' savings ratio, expressed as a percentage of disposable income, is also pro-cyclical. The same magnitude for the empirical correlation (i.e. from 0.27 to 0.31) is obtained in the cases of the cyclical components of t-1, t or t+1 GDP.

f) Income distribution

The Gross Domestic Product at factor prices is equal to the sum of total compensation of employees (including social security contributions) and

the gross operating surplus. The definition of the labour and profit shares is, therefore, straightforwardly derived, even if they can be seen only as empirical proxies to the measurement of labour and profit shares. In the computation of the shares all the variables were considered at current prices.

When the variables are expressed in levels, both total compensation of employees and the gross operating surplus are pro-cyclical. In the first case, and as already noticed, the strongest correlation is with the cyclical component of *t*-1 GDP, whereas in the second case the strongest correlation is obtained with the cyclical components of *t* and *t*+1 GDP. As one could expect, the gross operating surplus is more volatile (two times more) than the total compensation of employees.

Being both variables pro-cyclical in levels, it is interesting to see how they behave when expressed as shares, and therefore being forced to respect a linear restriction. The largest correlation between the cyclical component of the shares and the cyclical component of GDP is obtained with a lag of two years. There is a positive correlation between the deviations of the labour share vis-à-vis its trend and the cyclical component of aggregate activity. The lag probably reflects the lag in some labour market variables, like real wages. The cyclical behaviour of the labour share means that, in good times, real wages increase by more than productivity and that, in bad times, they increase by less. This constitutes a stylised fact of the Portuguese labour market, usually referred as the high real wage flexibility. Throughout the sample period this process has been consistent with share variations around a fairly constant labour share of 55 per cent, using the proxy above mentioned.

Given the linear constraint on the sum of the shares, one obtains a (exactly symmetric) negative correlation between the profit share and the cyclical component of GDP and the corresponding lag. Empirical evidence available for the USA shows that the labour share is counter-cyclical, with a lag of two quarters. See for instance Kydland (1995). Therefore, the cyclical behaviour of the labour share in Portugal seems to be different than the one obtained for the USA.

g) Monetary variables

In what concerns monetary variables, we decided to analyse three different aggregates: the monetary base, M1 and M2. These three variables were filtered in real terms, using as price indicator the GDP deflator. The cyclical components of the three series are pro-cyclical, usually with one year lag vis-à-vis the cyclical component of real GDP. The same result was obtained for credit to non-financial firms and households. The result of pro-cyclical monetary aggregates is a reasonably robust stylised fact. See, for instance, Cooley and Hansen (1995) or Stock and Watson (1999). However in both studies monetary aggregates are leading indicators to the evolution of real GDP whereas in Portugal, for the period analysed, they seemed to have behaved with a lag of one year.

4. CONCLUSIONS

The main stylised features of the cyclical behaviour of the Portuguese economy in the period 1953-1995 were the following:

a) cyclical fluctuations across the main sectors of the economy — i.e. industry, building and construction, and services — are relatively synchronized;
b) the demand components — private consumption, gross fixed capital formation, exports, imports and, to a minor extent, public consumption, — are strongly pro-cyclical;
c) consumption of non-durables and services is smooth, fluctuating slightly less than output;
d) gross fixed capital formation and the consumption of durables fluctuate considerably more than output (2.5 times more volatile);
e) exports and imports fluctuate considerably more than output (2.0 and 2.3 times more volatile, respectively);
f) the external balance is counter-cyclical, with a lag of one or two years;
g) the labour force and employment are strongly pro-cyclical;
h) unemployment is strongly counter-cyclical, either contemporaneously or with a slight lag;

i) apparent labour productivity is strongly pro-cyclical;
j) the variability of GDP real can be approximately decomposed in the variability of productivity and employment (with contributions of 60 and 40 per cent, respectively);
k) real wages are pro-cyclical, with a lag of one or two years vis-à-vis the cyclical component of GDP;
l) real wages are two times more volatile than apparent productivity;
m) savings — both in levels and as a percentage of disposable income — are pro-cyclical;
n) the labour share is pro-cyclical, peaking around two years after real GDP;
o) monetary aggregates are pro-cyclical.

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ANNEX

STATISTICAL DESCRIPTION OF THE SERIES USED IN THE STUDY

This annex provides detailed statistical information on the series used in this study. Annex 1 reports the arithmetical average of the observed growth rates for a long list of macroeconomic variables. Variables presented in a), b) and d) are expressed in real terms. The respective standard error and the maximum and minimum values are also included in the table. Annex 2 includes the same basic descriptive statistics for variables expressed as ratios.

Annex 1

DESCRIPTIVE STATISTICS

Growth rates

	Average	Standard deviation	Maximum	Minimum
a) Economic activity				
GDP at market prices	4.4	3.1	10.5	-5.1
GDP at market prices *per capita*	4.0	3.6	11.1	-8.4
Gross Value Added — Agriculture, forestry and fishing	1.6	7.8	20.7	-15.1
Gross Value Added — Industry	6.0	6.2	22.7	-11.9
Gross Value Added — Construction	2.9	9.0	25.4	-16.0
Gross Value Added — Services	4.5	2.2	9.9	0.3
b) Expenditure components				
Private consumption	4.5	3.4	10.0	-5.4
Private consumption of non-durables	4.1	4.5	11.9	-6.5
Private consumption of services	4.7	3.7	12.7	-3.0
Private consumption of non-durables and services	4.3	3.2	9.5	-4.5
Private consumption of durables	6.7	9.1	28.7	-12.8
Public consumption	6.1	4.7	25.5	-0.8
Investment	6.1	10.3	30.4	-20.6
Gross Fixed Capital Formation (GFCF)	5.8	9.8	22.0	-21.1
GFCF (machinery)	8.0	10.2	33.1	-19.7
GFCF (transport equipment)	8.2	17.8	45.9	-28.2
GFCF (construction)	4.6	12.6	33.9	-27.0
Domestic demand	4.9	4.4	13.1	-8.7
Exports of goods and services	8.4	7.7	27.8	-14.4
Exports of goods	9.1	8.1	29.4	-15.9
Exports of services	6.4	11.4	31.2	-19.8
Exports of consumption goods	8.8	8.1	23.5	-10.2
Exports of non-durable consumption goods	8.1	8.2	25.3	-10.9
Exports of durable consumption goods	19.1	20.0	92.6	-24.1
Exports of investment goods	15.0	16.8	54.6	-26.4
Exports of intermediate goods	7.9	9.0	31.3	-17.3
Exports of energetic goods	78.7	411.2	2 667.1	-50.6
Overall demand	5.4	4.0	12.5	-9.6
Imports of goods and services	9.0	9.5	34.5	-22.4
Imports of goods	9.4	9.4	28.6	-23.8
Imports of services	7.1	19.1	84.3	-41.3
Imports of consumption goods	12.2	16.0	46.3	-26.7
Imports of non-durable consumption goods	13.3	20.2	82.5	-29.6
Imports of durable consumption goods	11.9	18.6	59.9	-39.0
Imports of investment goods	10.2	15.7	43.6	-30.2
Imports of intermediate goods	9.2	10.0	27.1	-24.6
Imports of energetic goods	6.7	7.8	23.6	-9.1
c) Employment, unemployment and productivity				
Labour Force	0.9	0.9	3.3	-0.9
Total Employment	0.8	1.3	3.4	-2.3
Employment — Agriculture, Forestry and Fishing	-2.4	2.4	3.8	-7.7
Employment — Industry	1.2	2.8	6.4	-4.6
Employment — Construction	3.0	5.7	16.5	-6.9
Employment — Services	2.4	1.8	6.3	-2.1
Unemployment	5.4	22.4	86.2	-29.1
Productivity	3.6	2.6	10.4	-2.9
Productivity — Agriculture, forestry and fishing	4.2	8.7	28.3	-11.9
Productivity — Industry	4.7	5.2	15.3	-8.7
Productivity — Construction	-0.2	6.0	11.1	-22.9
Productivity — Services	2.1	1.9	7.0	-2.7
d) Wages and disposable income				
Total compensation per employee	4.0	4.8	12.1	-12.7
Disposable income	4.7	4.1	14.2	-6.0

Annex 2

DESCRIPTIVE STATISTICS

Ratios

	Average	Standard deviation	Maximum	Minimum
a) Current account (as a % of GDP)				
Current account	-1.8	3.8	3.5	-12.9
Goods and services	-7.1	3.6	-1.3	-17.3
Goods	-8.7	4.0	-2.9	-19.0
Services	1.6	1.8	5.0	-2.6
Income balances	-1.0	1.9	0.7	-6.2
Transfer balances	6.3	2.6	10.7	2.0
b) Unemployment				
Unemployment rate	5.0	2.5	9.9	1.4
c) Savings				
Savings rate (as a % of disposable income)	18.0	7.5	30.5	3.7
d) Income distribution				
Labour share	55.6	5.7	73.8	48.8
Profit share	44.4	5.7	51.2	26.2

FINANCING PENSIONS FOR PUBLIC SECTOR WORKERS IN PORTUGAL: ESTIMATES OF THE LONG RUN IMPACT ON PUBLIC FINANCES*

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1. INTRODUCTION AND MOTIVATION

The first large scale social protection system in Portugal was created in 1929 to cover public sector employees. It still exists today and it is called *Caixa Geral de Aposentações* (CGA). By any physical or financial measure the CGA is a large pension system in the Portuguese context even though it is smaller than the Social Security system that covers most of the workers in the private sector.

A couple of figures help to illustrate the relative size of the two systems. In 1998, Social Security had 4.3 million active contributors whereas that figure for CGA was 681 thousand, a ratio of 16 per cent. As of 2000, Social Security had nearly 2.5 million old age, survivor and disability pensioners while in the CGA there was 428 thousand pensioners, a ratio of 17.1 per cent. However, the expenditures on pensions for old age, disability and survivors in Social Security were 6.1 per cent of GDP for Social Security and 3.6 per cent of GDP for the CGA, a ratio of about 60 per cent.

There is no reason to expect that the relative importance of the CGA financial flows will decline in the coming years. That is the motivation for this paper. Its objectives are to estimate the main demographic and financial trends characterizing CGA's foreseeable future and to evaluate their consequences for the public finances.

2. THE CGA: A BRIEF DESCRIPTION AND QUANTITATIVE CHARACTERIZATION

2.1. Contributors, retirees and pensioners

The CGA pays old age and disability pensions to former contributors and survivor pensions to widows and descendants of CGA contributors or pensioners. It is also responsible for other types of pensions that governments decide to award for special reasons, such as pensions to families of military personnel killed or injured in the line of duty. The CGA also acts as an intermediary in the payment of pension to retirees from several current and former state-owned firms.

The data available from CGA is based on aggregates of administrative records and it does not distinguish between old age and disability retirees[1]. Also, there are some aspects where the data does not make it possible to distinguish survivors from other types of pensioners.

In the general case, for the subscribers that joined the system before September 1993, the

* The views expressed here are solely of the authors and do not reflect necessarily the positions of the Banco de Portugal. The authors thank the CGA and Margarida Carvalho, IGDAP and Célia Fernandes for the data and numerous explanations without which this paper would not have been possible. Any remaining errors are the authors responsibility.

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*** Banco de Portugal. This work was completed while Luís Morais Sarmento was on leave from the Banco and working at the Ministry of Finance as adviser to the Secretary of State for the Budget.

(1) Given that the pension formula is the same in both cases that distinction is not really relevant for our purposes.

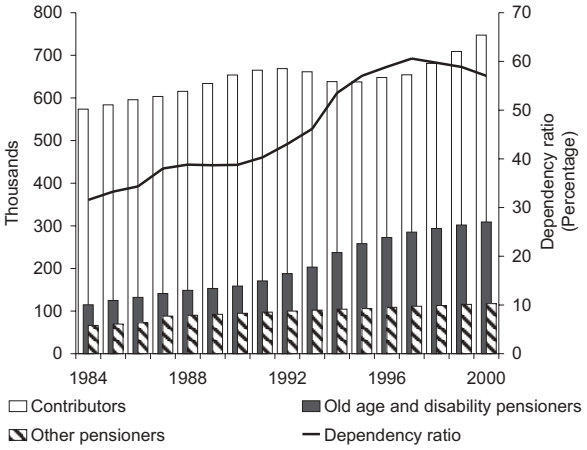
monthly pension of a new retiree is defined as 100 per cent of the gross-of-tax wage earned in the last month of service for those who had 36 years of recorded contributions(2). For those whose career span was less than 36 years there was a proportional reduction in the pension. In some exceptional cases pensions were defined with respect to earnings over the last two or the last three years. The minimum number of years to earn the right to a pension was 5 and any civil servant can choose to retire after age 65, or with 36 years of service provided he is over 60(3). As of 2001 the majority of current CGA contributors is still in this regime. However, entry into this regime was terminated in 1993. Civil servants admitted after September 1993 have pensions with Social Security's rules, which are less generous than the ones we just described.

The CGA is run as a pure Pay-As-You-Go (PAYG) system. Pensions are paid out from civil servants contributions. Each civil servant's contribution is 10 per cent of the relevant wage. Additionally, government uses general revenues to contribute with the amount necessary to balance the annual CGA budget. This means that the general government's contribution has a residual nature and thus it is not defined as a proportion of the civil servants pay.

2.2. Recent evolution

By the end of 2000, the number of CGA contributors reached 747 449, almost 94 000 contributors more than 10 years before, a rise of 12.5 per cent.

Chart 1
CONTRIBUTORS, RETIREES AND PENSIONERS



Source: CGA.

This growing trend was only interrupted briefly in 1993-1995 (see Chart 1). These figures correspond to an average growth rate of 1.3 per cent per year during the decade. Despite that, the dependency ratio(4) was raised from 39 to 57 per cent, due to the increase in the numbers of retirees and pensioners(5).

The CGA PAYG system historically demanded a relatively low financial effort from the general government. The dependency ratio was low because life expectancy after retirement was small and because the number of civil servants was growing. As the system matured, the tensions in the PAYG system became more explicit, and the general government contributions had to rise. Chart 2 shows how pension expenditure grew in the 1990's and how that growth was financed by a stable contribution share from workers (as a percentage of GDP) and by a growing share of the general government's residual contribution, reaching up to 2.1 percentage points of GDP by 2000. Other revenues include payments from former government owned firms and other entities.

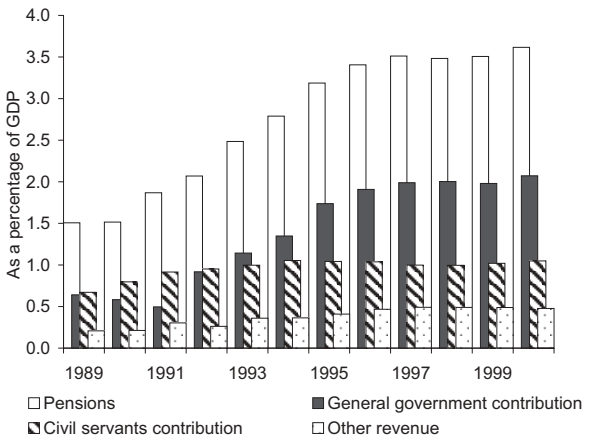
(2) The benefit rules that apply in practice are slightly more complex. Every year, the Minister of Finance issues an executive order (*Portaria*) defining the annual increase of the CGA pensions. That same order always says that pensions should not be increased long as they stay, above 90 per cent of their statutory level. This means that in any given year, a pension is defined as the maximum of the initial nominal pension or of 90 per cent of the initial pension adjusted by the annual increases of pensions. After a few years of erosion, all pensions are based on 90 per cent of what one would expect from statutes alone. All our calculations include, for new and recent retirees, the transitional years of declining real pensions. The calculations then assume a cost-of-living adjustment for each pension based on 90 per cent of its initial real value.

(3) A 1985 Decree allows civil servants to retire before reaching 60, conditional on having a full career. This exception was designed as a temporary measure to decongest the civil service, but it still is valid.

(4) The dependency ratio is defined as the number of pensioners for each contributor.

(5) If the number of contributors had been kept at the 1990 level, the dependency ratio would have reached 0.65 in 2000.

Chart 2
MAIN CGA FINANCIAL FLOWS



Source: CGA.

Table 1

NUMBER, GENDER AND AGE OF CGA RETIREES IN 1998

	Female		Male	
	Number	%	Number	%
Less than 50 years old	3 388	3.4	13 153	6.6
Between 50 and 60 years old	22 032	22.3	45 131	22.7
Between 41 and 50 years old	40 316	40.8	69 699	35.1
Between 70 and 80 years old	25 606	28.0	53 713	29.6
More than 80 years old	7 471	8.2	16 879	9.3
Total	98 813	100.0	198 575	100.0
% Total retirees	33.2		66.7	
Average age (years old)	65.8		65.3	

Source: CGA.

2.3. The CGA system in 1998

Given the data available, it was decided to anchor the construction of the scenarios for the future evolution of the CGA in 1998, using 1999 and 2000 to test and calibrate the parameters of the model.

In 1998, the CGA had 197 388 retirees distributed by age and gender according to Table 1. Men are two thirds of the total retirees. There is a higher proportion of retirees in the "70 and over" male cohorts than in the matching female cohorts. These two facts might be explained by the late arrival of women to the formal labour market.

Table 2

NUMBER, GENDER AND AGE OF CGA SUBSCRIBERS IN 1998

	Female		Male	
	Number	%	Number	%
Up to 30 years old	53 893	15.8	61 968	18.2
Between 31 and 40 years old	104 593	30.8	92 465	27.1
Between 41 and 50 years old	109 133	32.1	111 757	32.8
Between 51 and 60 years old	58 661	17.3	57 299	16.8
Between 61 and 70 years old	13 739	4.0	17 661	5.2
Total	340 019	100.0	341 150	100.0
% Total subscribers	49.9		50.1	
Average age (years)	41.8		41.8	

Source: CGA.

3. SOME CHARACTERISTICS OF THE PUBLIC SECTOR LABOUR MARKET

3.1. Civil service composition by age, sex, education and tenure

In 1998 the CGA counted 681 169 contributors, and in contrast to the pensioner's data, male and female contributors were almost evenly divided. Coincidentally, males and females had the same average age.

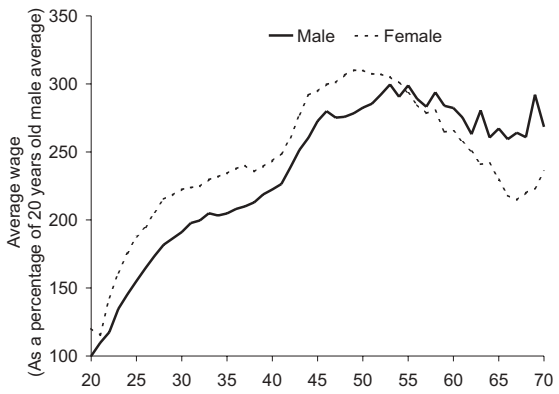
A useful source of information on the public sector labour force is the 1999 Civil Service Census[6]. The census shows[7] that women are the majority in the civil service and that they have, on average, higher levels of schooling. Furthermore the difference in years of schooling between males and females is larger in the youngest cohorts. This means that in the next few years, the mean education gap between genders will most likely get wider.

The 1999 civil service census also shows that men have higher tenure than women in the youn-

(6) The census and CGA's demographic and wage data do not coincide perfectly as a few CGA subscribers are not civil servants and a few public sector employees are not CGA subscribers. However the populations covered overlap extensively and the census data is useful because it has more detailed information on the characteristics of the employees.

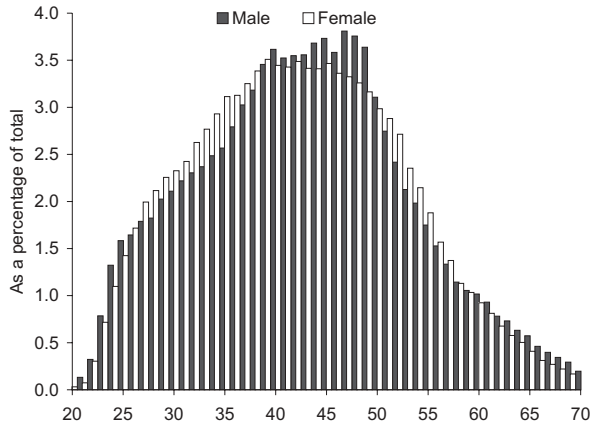
(7) The details of the analysis are not shown here for brevity's sake.

Chart 3
AGE STRUCTURE OF WAGES



Source: 1999 Civil Service Census.

Chart 4
CIVIL SERVANTS AGE DISTRIBUTION



gest cohorts, but that this is reversed in the cohorts above 50. Furthermore, the CGA data on the distribution of tenure at retirement, by age, is relatively stable over time. This stability of the age-tenure profile is helpful in terms of constructing the scenarios for the medium and long-term evolution of the CGA.

3.2. Civil service earnings

Chart 3 displays a graph with male and female average earnings by age, after normalizing the wage of a male 20 year old to 100. The figure shows that mean earnings by age increase up until age 50 for women and 55 for men. Older workers, especially women, have a negatively sloped pattern.

Chart 4 shows the age distribution of civil servants. There is a concentration of workers in the interval of 35 to 50 years of age.

A remarkable feature of the civil service in Portugal is that women are much more educated than men. This justifies why there are more male than female civil servants in the younger cohorts (Chart 4), and also explains why, in 1999, the female average wage was 7.7 per cent higher than the males' average wage. However, this does not mean that women are not discriminated in civil service as the mean wage difference is less than what one should expect given the large disparities in the levels of education. In fact, a woman with the female average for characteristics like age, tenure and schooling receives a wage 16.4 per cent lower than a man with the same characteristics. On the opposite side, a man with the male average age, years of schooling and tenure has a wage 23 per cent higher than the wage of an otherwise similar woman.

The wage patterns by gender, age, schooling, tenure and potential experience were captured by regression analysis, the results of which were used later to forecast wage structures over time.

3.3. Civil service hiring, retirement, and separation patterns

We do not have data bearing directly on hiring by the Civil Service, but we have data on entries into the CGA. This data shows that entry in the civil service occurs mostly before age 30, with males entering at younger ages than females, a fact consistent with the males' lower levels of schooling. Entries after age 40 are rare, particularly for males.

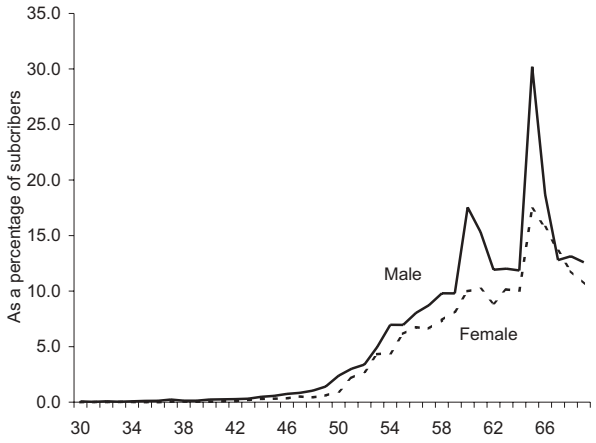
Civil servants hired before 1993 with 36 years of tenure can retire with a full pension provided they are over 60. In practice, many retire before they are 60. Chart 5 shows the retirement-age pattern by gender in the CGA data. Men have peak hazard rates[8] at 60 and 65 and women at 65.

Other outflows from the Civil Service are extremely small. Firing is extremely uncommon, and quitting the Civil Service is also rare[9].

(8) The retirement rate for a given age is the ratio of the number of retirements of people of that age over the number of civil servants that were one year younger the previous year.

Chart 5

RETIREMENT RATES BY AGE AND GENDER



Source: CGA.

4. THE PROJECTION ASSUMPTIONS

4.1. Basic methodology

Although the CGA accounting system does not provide separate data for the before and after 1993 regimes[10], we will proceed based on estimates and we will consider separately the two schemes with their different pension formulas.

To project the future of the CGA system it is necessary to make assumptions about the way three types of variables will evolve over time: economic variables (interest rates, productivity or GDP growth, etc.); physical variables of the system (the number of civil servants, mortality rates, etc.); and the parameters of the system (contributions rates, the statutory minimum retirement age, etc.). These assumptions were combined in a model to forecast the future physical and financial flows of the system.

By the end of 2000, the CGA had public debt funds in the amount of € 400 million.These funds were not included in our analysis, even though they are important in the financial management of the CGA. These funds are neutral with respect to the financial shows between the public sector and the other sectors in the economy.

The model used was the Pension Reform Options Simulation Tool-kit (PROST) constructed by the World Bank to simulate and to evaluate reform options for the pension system (see Worldbank (2001)).

4.2. Macroeconomic trends

From 1998 to 2001, the GDP real rate of growth follows the recorded experience In the baseline scenario for the GDP it was assumed that GDP accelerates after 2002 reaching a steady state growth of 2.9 per cent, in 2005. From 2005 onwards, GDP growth is the sum of productivity growth plus the growth of the working age population. The productivity in Portugal is assumed to increased 1 percentage point above the average of the European Union[11]. This convergence scenario would allow Portuguese productivity to reach 90 per cent of the average European productivity by 2040. From that date till 2055, Portuguese productivity growth convergence is complete. The PROST model indexes the wage structure to the real wage growth of 20 years old males. This growth corresponds to the real wage growth not due to increases of mean tenure or mean professional experience of the public sector labour force. In our model general productivity plus educational levels growth drive real wages. Our modelling assumes that pensions are kept constant in real terms.

We assume the steady state inflation to be equal to 2 per cent. This rate holds for both the GDP deflator and for the Consumer Price Index. In the case of the real interest rate, the steady state value was set equal to 3 per cent. Both figures become effective after 2005 after a smooth transition from their 2001 levels.

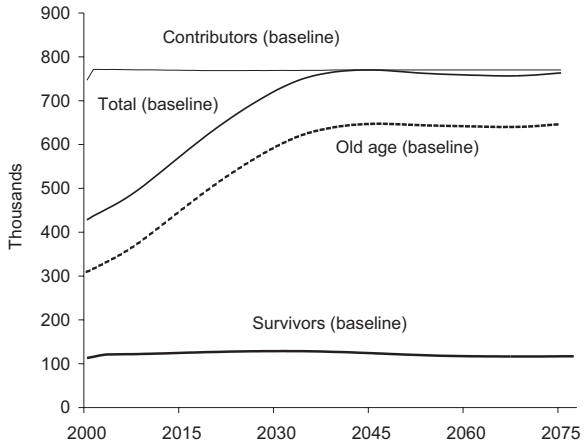
In order to assess the sensitivity of the results to the macroeconomics assumptions, we will also report results obtained under different sets of assumptions.

(9) We will deal with mortality issues in the next section.

(10) CGA supplied aggregate data by age and gender for the number of subscribers in each regime at the end of 1997 and 1999. The figures for 1998 are an estimate made by the authors.

(11) Using the AMECO database, we observe that productivity growth from 1990 to 2001 in Portugal was about 1 p.p. higher than the average growth in the European Union. We assumed that the long run growth rate of the labour productivity in the European Union is 1.25 per cent.

Chart 6
CONTRIBUTORS AND PENSIONERS



Source: Authors' calculations using PROST.

4.3. Number of positions

Three alternative assumptions were made concerning the evolution of the number of CGA contributors. In the first one, the number of subscribers is held constant from 2002 onwards. In the second one the number of positions is reduced allowing only one entry for each four people retiring from civil service between 2002 and 2006. The third scenario corresponds to reducing the number of civil servants from 2035 onwards, in line with the decrease of the working age population.

Deaths of civil servants and retirees are given by the mortality rates supplied by Eurostat for the period 1998-2050[12]. From 2050 onwards, the mortality rates are the same as in 2050.

5. BASELINE RESULTS

5.1. Contributors and pensioners

The first set of results from the model simulation deals with physical units, i.e. numbers of contributors and pensioners. The basic results can be seen on Chart 6. The simulation was carried out from the premise that there will be a constant level of public sector workers, fixed at the total existing at the end of 2001.

The total number of old-age and disability pensioners is projected to increase from 294 thousand in 1998 up to 648 thousand by 2045, and experience a gentle decline after that point down to 640 thousand by 2065. After that, the total number of old-age and disability retirees becomes almost stable, barely reaching 647 thousand by 2075. Survivor pensioners will increase up to a maximum of 129 thousand in 2025 after which they will decline down to 117 thousand by 2060 after which their number becomes stable.

The evolution of the total number of pensioners also grows from 407 thousand in 1998 up to 771 thousand by 2045, declining then to a low of 757 thousand by 2065, and growing again slowly up to 764 thousand by 2075.

5.2. Financial flows

A first question refers to what would be the expected evolution of the general government contributions to the CGA, if the 2001 *status quo* were to be maintained until the end of the projection horizon. In this *status quo* it is assumed that the pension formula of the post-1993 subscribers is defined by the February 19 Decree-Law no.35/2002. The new rules include a grandfather clause that allows subscribers already enrolled to choose between the new formula and a weighted average of the new and the old formula[13]. This current situation is defined to be the baseline scenario.

In the baseline scenario the subscribers' contributions to CGA remain very stable as a percentage of GDP, growing 0.3 percentage points (p.p.) from 2001[14] to 2075. However pension payments grow at a higher pace, increasing 1.5 p.p. of GDP from 2001 up to 2020. After 2020 pension payments decrease 0.4 p.p. up to 2048 as a result of the change in the pension formula that applies to the subscribers enrolled in the CGA after 1993. After 2050

(12) On the course of the model calibration, the Eurostat mortality rates were slightly adjusted downward.

(13) The new social security base law has other grandfather clauses for workers enrolled in the system before the law was passed. However, those clauses do not seem to be relevant for civil servants.

(14) Although 1998 was taken as the base year, the comparisons are made with respect to 2000. This means that it already takes into account the large increase in the compensation of public sector employees in the more recent years.

pensions payments as a percentage of GDP grow 0.8 p.p. reaching 5.5 p.p. of GDP by 2075.

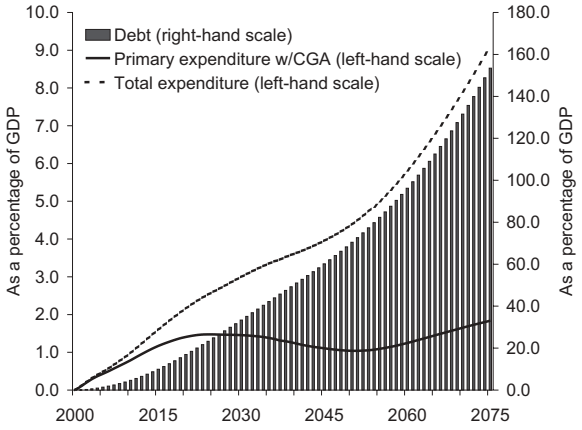
To measure the impact on public finances of future general government expenditures we use a concept of "additional expenditures". These are defined as those expenditures that exceed the percentage of current GDP that the general government was spending in 2000, i.e. 2.1 per cent[15]. All values concerning the impact of CGA expenditures on public finances are based on these additional expenditures.

Chart 7 shows the evolution of the general government additional contribution to CGA. The general government primary contribution to CGA will increase by 1.5 p.p. of GDP until 2022. From then on, the general government expenditure should decline to 1 per cent of GDP by 2050. After 2050, it is expected that the increase in the primary expenditure will resume, showing that the measures taken in 1993 were not sufficient to keep the system in a sustainable path. In 2075, the additional primary expenditure is expected to be 1.8 p.p. of GDP higher than in 2000.

On the assumption that no additional compensatory discretionary measures are taken (for example tax increases), it is possible to have an approximate measure of these expenditures with the CGA on the overall general government expenditure by adding the interests on the debt generated. Total expenditure flows grow over the entire period of analysis. Comparing with 2000, total expenditure increases by 2.2 p.p. of GDP by 2020, 4.4 p.p. by 2050, and by 9.1 p.p. by 2075. As for the debt stock, it starts at zero by definition and grows up to 153.5 per cent of GDP by 2075.

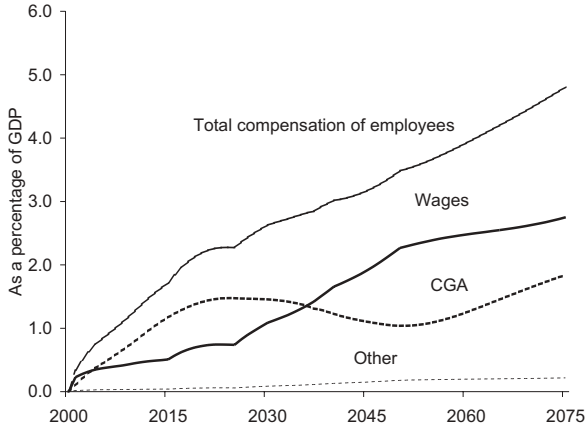
The basic assumptions about the evolution of schooling and wages led to a maximum increase in the civil servants wages of 2.8 p.p. of GDP for the whole projection[16] horizon. Together the cumulative increase in wages and the transfers to CGA will induce a growth of 4.8 p.p. in the total primary expenditure of general government (Chart 8).

Chart 7
IMPACT OF CGA ON THE GG EXPENDITURE



Source: Authors' calculations using PROST. Lines represent differences to 2000 level.

Chart 8
GENERAL GOVERNMENT COMPENSATION OF EMPLOYEES



Source: Authors' calculations using PROST. Chart shows differences to 2000 level.

The implicit debt, defined as the present value of the accrued rights of subscribers and pensioners[17], reached 122.9 per cent of GDP in 2000. In this first scenario, this figure increases to 130.2 per cent in 2013. As the pensioners and subscribers enrolled in the CGA before 1993 pass away, the implicit debt starts to reduce to about 114.5 per cent of GDP by 2044. After that date the imbal-

(15) Since there is no specified contribution rate for government, we make this assumption that defines 2000 current contributions (as a percentage of GDP) as the counterfactual government contributions.

(16) Note, however, that 0.3 p.p. of GDP was the recorded increase from 2000 to 2001.

(17) We can interpret the implicit debt as the cost to shut down the system now and pay all accrued rights to workers and pensioners.

ances of the system become more noticeable and the implicit debt starts to grow up to 128.4 per cent of GDP in 2075.

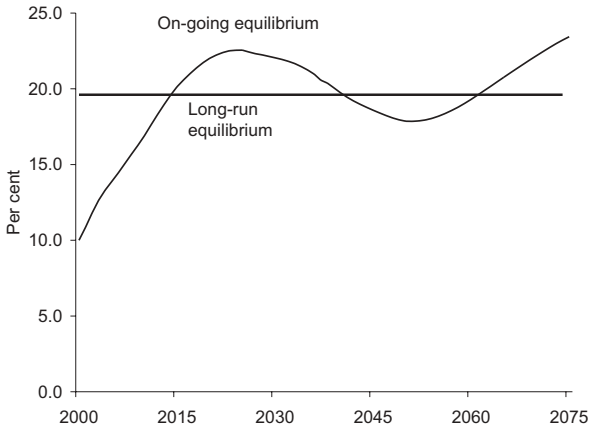
One question that might be asked is what should be the total amount of assets, needed in 2000, to cover the increase of public expenditure with the CGA in the time horizon of the projection. This is basically the present value of payments exceeding the present financial effort up to 2075, measured as a percentage of GDP. This concept is known as the *financing gap*. In this case, these assets would have amounted to 66.4 per cent of GDP.

Another parameter estimate that may prove interesting in conveying the disequilibrium situation of the CGA is the actuarially fair contribution rate, or *long run equilibrium contribution rate*. This is the rate (constant over time) that would drive the financing gap to zero over the analysis horizon, i.e. that would generate enough surpluses in the best years to compensate for the deficits in the worse years. While the current contribution rate is 10 per cent, in the baseline the long run balance would be obtained by a contribution rate of 19.6 per cent[18].

In contrast, we can define two concepts that relate to the conditions necessary to have a financial equilibrium of the CGA each year. The on going contribution rate is the rate that would provide enough contributions to balance the CGA in any given year. Chart 9 displays the time profile of these contribution rates. Alternatively, we can think of achieving financial balance by adjusting the expenditure on pensions. One way to do this is to lower the replacement rate (i.e. the ratio between the mean wage and the mean pension). For the CGA that ratio was 53.8 per cent in 2000. The appendices show how the on going equilibrium replacement rates evolve over time and under the different scenarios considered.

Chart 9

LONG RUN *VERSUS* ON-GOING EQUILIBRIUM CONTRIBUTION RATES



6. ALTERNATIVE SCENARIOS

6.1. Definition of alternatives

This paper tries to answer six questions about financial flows. The first, seen in the previous section, concerned the expected evolution of the general government contributions to CGA, if the 2001 *status quo* were to be maintained. The second question is on the extent to which the results from the baseline are sensitive to the macroeconomic assumptions made.

The third question asks what would have been the path of the contributions by the general government in the absence of the 2001 change in the benefits formula applying to the subscribers enrolled after September 1993.

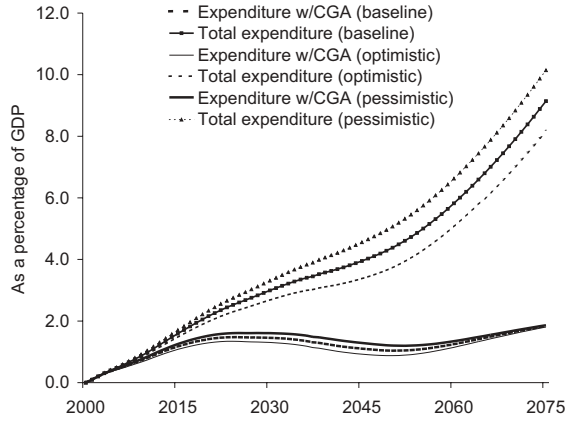
The fourth scenario is retrospective and relates to the quantitative importance of the 1993 reforms.

The fifth question is used to assess the impact on CGA accounts of a policy change consisting in a reduction in the number of CGA subscribers starting in 2002 till 2006. The number of subscribers is kept constant from 2006 onwards. The reduction is attained allowing the entry of only one new subscriber per four subscribers leaving the civil service, due to retirement. The sixth question is on the impact of reducing the size of the civil service after 2035 to keep it proportional to the working age population. The simulations results will be presented as the differences, in percentage points of GDP, with respect to what was observed in 2000.

(18) The long run equilibrium rate measures the resources needed to balance the CGA up to 2075, and should only be considered as an alternative measure of the imbalance of the system. It has no implications on which should be the proportion of the contributions paid by the employer or by the employee.

Chart 10

IMPACT OF CGA ON THE GG EXPENDITURE, ALTERNATIVE MACRO SCENARIOS



6.2. Sensitivity to macroeconomic conditions

To examine how sensitive the results were to changes in growth rates for GDP, real wages and productivity, we recalculated the baseline case with periods of sustained higher and lower growth rates by a quarter of percentage point. Results are displayed in Chart 10.

The optimistic (pessimistic) scenario differs from de baseline because the growth rate of GDP is higher (lower) than the baseline by 25 basis points from 2005 up until 2040, the difference then gradually disappearing by 2055. These same 25 basis points differences between the optimistic (pessimistic) scenarios and the baseline hold for productivity and real wage growth.

The results show that additional expenditures with the CGA are larger the more pessimistic, i.e. with less growth, the scenarios are. By 2075 total additional expenditures will be 10.1 p.p. in the pessimistic scenario, 9.1 p.p. in the baseline and 8.2 p.p. in the optimistic case. As for primary additional expenditures on the CGA, they will be 1.5 p.p. by 2030 in the baseline scenario, 1.3 p.p. in the optimistic scenario and 1.6 per cent in the pessimistic one. These amounts then decline and go up again, with differences narrowing down later up to 2075. Primary additional expenditures by 2075 will be 1.9 in the pessimistic scenario and 1.8 p.p. in both the optimistic and the baseline scenarios.

Table 3

AGGREGATE RESULTS BY SCENARIO

Scenario	Financing gap	Long-run contribution rate
	As a percentage of GDP	Per cent
Baseline	66.4	19.6
Pessimistic	67.6	20.5
Optimistic	64.7	18.7

An alternative way to assess the impact of changing macroeconomic conditions is to compare the indicators already reported for the baseline case (see Table 3).

These aggregate indicators reinforce the idea that although the model's results display some quantitative sensitivity to the assumptions on growth rates, nothing qualitatively important changes when different assumptions are made.

6.3. The impact of the 2001 Social Security reforms

The Social Security reform implemented in 2001 impacts on the CGA because social security benefit rules apply to public sector workers hired after 1993. The reforms changed the benefit rules by increasing the number of years of contributions that are relevant to define the pension reference wage to 40 (previously, the best 10 out of the last 15), by adding a maximum of 0.5 percentage points annually to the inflation corrections of the wage history, and by substituting the pension accrual rates from 2 per cent per year of contributions to a progressive scale ranging from 2.3 per cent to 2 per cent as the reference wage increases.

While going back a larger number of years in computing the average real wage tends to decrease pensions, the other changes (the extra half point in monetary correction and the increase in the accrual rates) have the opposite effect.

Our results summarize the net effect of these changes in the CGA. The financing gap decreased from 73.5 per cent to 66.4 per cent of GDP, while the long run equilibrium contribution rate decreased from 20.8 per cent to 19.6 per cent . Overall, the reform reduced the long run imbalance of

Table 4

AGGREGATE RESULTS BY SCENARIO

Scenario	Financing gap	Long-run contribution rate
	As a percentage of GDP	Per cent
Baseline	66.4	19.6
Pr e2001	73.5	20.8
Pr e1993	141.1	30.7
4 for 1	59.2	19.4
Reduction after 2035	67.0	19.9

the CGA, but the effects were too small to cause any major improvement towards sustainability.

6.4. The impact of the 1993 CGA reforms

By comparing what would be our situation today if the 1993 reforms had not occurred with the pre-2001 situation we can estimate the long run impact of those reforms. The results are shown in Table 4: the 1993 reform nearly halved the financing gap and cut by almost 10 p.p. the long run equilibrium contribution rate. Although far from re-establishing the long run sustainability of the CGA, the 1993 reforms had a major impact reducing the size of the problem.

6.5. The impact of the "4 for 1" human resources policy

One of most often mentioned policies meant to reduce public expenditures and to reduce the costs to the taxpayer is to downsize the public sector and to reduce the number of civil servants by a combination of attrition and sparse hiring. A proposal along these lines has suggested[19] that for a number of years, the public sector should adopt the policy that only one new civil servant would be hired for every four civil servants leaving. Chart 11 shows the physical results of adopting such a policy between 2002 and 2006.

The four-for-one policy has a direct impact on contributors until 2006 as the number of contributors is expected to decrease almost 60 thousand by the end of 2006. There are also noticeable reductions of total and old age and disability pensioners. Even though it takes a long time for these reductions to build in, Chart 12 shows that they eventually reach more than 65 thousand for the old age and disability pensioners and more than 75 thousand for total pensioners.

Financially, the impact of the 4 for 1 in the CGA accounts is somewhat smaller because there is both a reduction in the expenditures and in the contributions of civil servants. We have concluded that the long run equilibrium rate is reduced from 19.6 per cent only to 19.4 per cent. However, the financing gap decreases by 7.2 percentage points of

Chart 11

CONTRIBUTORS AND PENSIONERS: BASELINE VERSUS 4 FOR 1

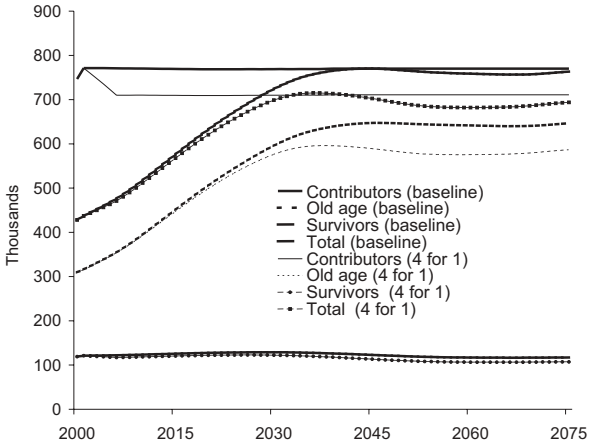
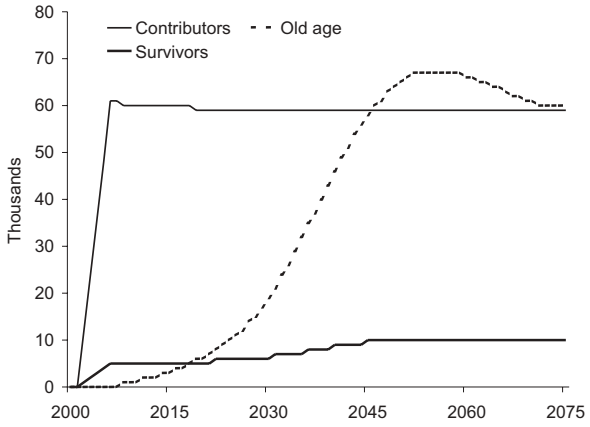


Chart 12

ACCUMULATED STAFF AND PENSIONERS REDUCTIONS



(19) See the report of the Committee on Reforming Public Expenditure, Ecordep, 2001.

GDP, a direct result of reducing the size of the civil service. There is also a reduction of the compensation of employees due to the reduction of the expenditure with wages (see the Table A.9 in the annex).

6.6. Reducing the size of the civil service after 2035

The long run demographic projections for Portugal imply that the size of the working age population will decrease, even when migration flows are considered. Our GDP scenarios took them into account but we did not assume any adjustment in the absolute size of the civil service in order to accommodate that projection. One of the reasons why, in the earlier simulations, we have found that the wage bill grows as proportion of GDP is that the number of civil servants rises as a proportion of working age population.

In this section we report the results of a simulation where the size of the civil service is kept proportional to the labour force from 2035 onwards, when the decline of this one starts to be noticeable.

In physical terms, this scenario shows an 8 per cent reduction in the number of contributors by 2075 along with a 3 per cent reduction in the number of total pensioners. In financial terms, the differences between this scenario and the baseline are not large. The contributions by subscribers are smaller by 0.1 per cent of GDP by 2075, total expenditure on pensions is smaller by 0.2 per cent of GDP but additional general government primary expenditures with the CGA stay basically the same. Both the financing gap and the long run equilibrium contribution rates have minute increases, to 67.0 and 19.9 p.p. respectively. However, by 2075 we do find a difference in the wage bill, which goes from 14.4 per cent of GDP in the baseline to 13.2. This also means that future pension expenditure reductions do not show up in the analysis because they will materialize mostly after 2075.

7. CONCLUSIONS

Fiscal discipline is nowadays a pre-condition for sustainable economic development. In that framework the European Union member states committed themselves to keep their public sector budgets close to balance. The main conclusion from this study is that maintaining the CGA *status quo* will force an increase in public revenues or a reduction in public expenditures in other public sector areas so as to compensate for the predictable growth in CGA expenditures. The decisions to increase revenues by using taxation, or to decrease other public expenditures, could have effects as sensitive as or perhaps even more sensitive than reforming the current public sector pension system.

A second conclusion is that the size of the problem is not very sensitive to macroeconomic conditions. Faster macroeconomic growth slightly reduces the problem, but to an almost negligible extent.

A third conclusion is that past reforms, in particular the one implemented in 1993, although insufficient to solve the problem completely, did have significant positive impacts, demonstrating that such reforms are clearly worthwhile.

A final conclusion relates to the four-for-one policy. Despite apparent short and medium run negative effects on the financial balance of the CGA, the long run effects are unquestionably positive. Furthermore, it is a measure that in the aggregate achieves a positive impact on the public finances even in the short run by decreasing the general government total compensation of employees.

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ANNEX (To be continued)

Table A.1

BASELINE – PHYSICAL VARIABLES

	1998	1999	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2055	2065	2075
Contributors (000's)	681	710	747	771	770	769	769	768	769	769	770	770	770	770	770
Enrolled before 1993	510	493	476	390	297	202	117	54	18	3	0	0	0	0	0
Enrolled after 1993	171	217	271	381	473	567	652	714	751	766	770	770	770	770	770
Total Pensioners (000's)	407	418	428	468	518	577	632	682	725	753	767	771	761	757	764
Old age	294	302	309	346	394	451	505	553	596	625	641	648	643	640	647
Old age enrolled before 1993	294	302	309	343	379	414	434	425	383	313	229	148	33	6	6
Old age enrolled after 1993	0	0	0	3	15	37	71	128	213	312	412	500	610	634	641
Survival	113	116	119	122	124	126	127	129	129	128	126	123	118	117	117
Old age dependency ratio	0.43	0.43	0.41	0.45	0.51	0.59	0.66	0.72	0.78	0.81	0.83	0.84	0.84	0.83	0.84
Total dependency ratio	0.60	0.59	0.57	0.61	0.67	0.75	0.82	0.89	0.94	0.98	1.00	1.00	0.99	0.98	0.99

Table A.2

4 FOR 1 – PHYSICAL VARIABLES

	1998	1999	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2055	2065	2075
Contributors (000's)	681	710	747	723	710	709	709	709	710	710	711	711	711	711	711
Enrolled before 1993	510	493	476	390	297	202	117	54	18	3	0	0	0	0	0
Enrolled after 1993	171	217	271	333	413	507	592	655	692	707	711	711	711	711	711
Total Pensioners (000's)	407	418	428	464	511	567	621	665	699	714	712	703	684	683	694
Old age	294	302	309	346	393	447	499	542	577	594	595	590	576	577	587
Old age enrolled before 1993	294	302	309	343	379	414	434	425	383	313	229	148	33	6	6
Old age enrolled after 1993	0	0	0	3	14	33	65	117	194	281	366	442	543	571	581
Survival	113	116	119	118	118	120	122	123	122	120	117	113	108	106	107
Old age dependency ratio	0.43	0.43	0.41	0.48	0.55	0.63	0.70	0.76	0.81	0.84	0.84	0.83	0.81	0.81	0.83
Total dependency ratio	0.60	0.59	0.57	0.64	0.72	0.80	0.88	0.94	0.98	1.01	1.00	0.99	0.96	0.96	0.98

ANNEX (Continued)

Table A.3

CIVIL SERVICE REDUCTION AFTER 2035 – PHYSICAL VARIABLES

	1998	1999	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2055	2065	2075
Contributors (000's)	681	710	747	771	770	769	769	768	769	769	761	746	726	719	707
Enrolled before 1993	510	493	476	390	297	202	117	54	18	3	0	0	0	0	0
Enrolled after 1993	171	217	271	381	473	567	652	714	751	766	761	746	726	719	707
Total Pensioners (000's)	407	418	428	468	518	577	632	682	725	753	767	770	759	750	744
Old age	294	302	309	346	394	451	505	553	596	625	641	647	641	633	627
Old age enrolled before 1993	294	302	309	343	379	414	434	425	383	313	229	148	33	6	6
Old age enrolled after 1993	0	0	0	3	15	37	71	128	213	312	412	499	608	627	621
Survival	113	116	119	122	124	126	127	129	129	128	126	123	118	117	117
Old age dependency ratio	0.43	0.43	0.41	0.45	0.51	0.59	0.66	0.72	0.78	0.81	0.84	0.87	0.88	0.88	0.89
Total dependency ratio	0.60	0.59	0.57	0.61	0.67	0.75	0.82	0.89	0.94	0.98	1.01	1.03	1.05	1.04	1.05

Table A.4

BASELINE – FINANCIAL VARIABLES

As a percentage of GDP

	1998	1999	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2055	2065	2075
Contributions by subscribers	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4
Assumed contribution by General Government	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Other revenues	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Expenditure on pensions	3.5	3.5	3.6	4.1	4.5	4.8	5.1	5.1	5.1	5.0	4.9	4.8	4.8	5.1	5.5
Additional General Government expenditures w/CGA	0.0	0.0	0.0	0.4	0.8	1.2	1.4	1.5	1.5	1.4	1.2	1.1	1.1	1.4	1.8
Civil service wage bill	11.0	11.5	11.6	12.0	12.1	12.1	12.4	12.4	12.7	12.9	13.3	13.5	14.0	14.2	14.4
Total compensation of employees	13.9	14.4	14.6	15.4	15.9	16.3	16.8	16.9	17.2	17.4	17.6	17.8	18.3	18.8	19.4
Implicit debt	120.1	121.8	122.9	127.6	129.8	130.1	128.2	124.6	121.3	118.0	115.5	114.5	118.4	124.4	128.4
On-going equilibrium contribution rate			10.0	13.9	16.9	20.1	22.0	22.6	22.1	21.2	19.7	18.6	18.2	20.8	23.4
On-going equilibrium replacement rate			53.8	50.1	45.2	40.3	36.0	33.2	30.6	28.9	27.8	27.2	26.6	26.3	25.6
Debt generated by CGA			0.0	1.4	4.6	9.9	16.9	24.9	33.4	42.2	51.0	60.2	82.3	112.5	153.5
Total General Government expenditure w/CGA			0.0	0.5	1.0	1.6	2.2	2.6	3.0	3.3	3.6	4.0	5.0	6.8	9.1

ANNEX (Continued)

Table A.5

MACRO OPTIMISTIC – FINANCIAL VARIABLES

As a percentage of GDP

	1998	1999	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2055	2065	2075
Contributions by subscribers	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4
Assumed contribution by General Government	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Other revenues	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2
Expenditure on pensions	3.5	3.5	3.6	4.1	4.4	4.7	5.0	5.0	5.0	4.9	4.7	4.6	4.6	5.0	5.5
Additional General Government expenditures w/CGA	0.0	0.0	0.0	0.4	0.7	1.1	1.3	1.3	1.3	1.2	1.1	0.9	1.0	1.4	1.8
Civil service wage bill	11.0	11.5	11.6	12.0	12.1	12.1	12.4	12.4	12.7	12.9	13.3	13.5	14.0	14.2	14.4
Total compensation of employees	13.9	14.4	14.6	15.4	15.8	16.2	16.7	16.8	17.1	17.2	17.5	17.6	18.2	18.7	19.4
Implicit debt	121.4	123.2	124.4	129.3	130.9	130.6	128.3	124.3	120.5	116.9	113.9	112.7	117.1	123.7	128.1
On-going equilibrium contribution rate (percentage)			10.0	13.7	16.4	19.4	21.0	21.4	20.8	19.9	18.3	17.2	17.2	20.2	23.2
On-going equilibrium replacement rate (percentage)			53.8	50.1	45.2	40.3	36.0	33.2	30.6	28.9	27.8	27.2	26.6	26.3	25.6
Debt generated by CGA			0.0	1.4	4.4	9.2	15.5	22.5	29.8	37.3	44.4	51.8	70.2	96.9	134.2
Total General Government expenditure w/CGA			0.0	0.5	0.9	1.5	2.0	2.4	2.7	3.0	3.1	3.4	4.3	6.0	8.2

Table A.6

MACRO PESSIMISTIC – FINANCIAL VARIABLES

As a percentage of GDP

	1998	1999	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2055	2065	2075
Contributions by subscribers	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4
Assumed contribution by General Government	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Other revenues	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2
Expenditure on pensions	3.5	3.5	3.6	4.1	4.5	4.9	5.2	5.3	5.3	5.2	5.1	5.0	4.9	5.2	5.5
Additional General Government expenditures w/CGA	0.0	0.0	0.0	0.4	0.8	1.3	1.5	1.6	1.6	1.5	1.4	1.3	1.2	1.5	1.9
Civil service wage bill	11.0	11.5	11.6	12.0	12.1	12.1	12.4	12.4	12.7	12.9	13.3	13.5	14.0	14.2	14.4
Total compensation of employees	13.9	14.4	14.6	15.5	15.9	16.4	16.9	17.0	17.4	17.6	17.8	18.0	18.4	18.9	19.4
Implicit debt	118.9	120.5	121.5	126.0	128.8	129.6	128.2	125.1	122.1	119.2	117.1	116.3	119.8	125.0	128.7
On-going equilibrium contribution rate (percentage)			10.0	14.0	17.3	20.9	23.0	23.7	23.3	22.6	21.2	20.0	19.2	21.3	23.6
On-going equilibrium replacement rate (percentage)			53.8	50.1	45.3	40.4	36.1	33.3	30.6	28.9	27.8	27.2	26.7	26.4	25.6
Debt generated by CGA			0.0	1.4	4.9	10.7	18.4	27.3	37.0	47.3	58.0	69.2	95.3	129.1	173.8
Total General Government expenditure w/CGA			0.0	0.5	1.0	1.7	2.3	2.8	3.3	3.8	4.1	4.6	5.8	7.7	10.1

ANNEX (Continued)

Table A.7

PRE 2001 SOCIAL SECURITY REGIME – FINANCIAL VARIABLES

As a percentage of GDP

	1998	1999	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2055	2065	2075
Contributions by subscribers	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.4
Assumed contribution by General Government	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Other revenues	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Expenditure on pensions	3.5	3.5	3.6	4.1	4.5	4.8	5.1	5.1	5.1	5.1	5.0	5.0	5.1	5.4	5.7
Additional General Government expenditures w/CGA	0.0	0.0	0.0	0.4	0.8	1.2	1.4	1.5	1.5	1.5	1.4	1.3	1.4	1.8	2.0
Civil service wage bill	11.0	11.5	11.6	12.0	12.1	12.1	12.4	12.4	12.7	12.9	13.3	13.5	14.0	14.2	14.4
Total compensation of employees	13.9	14.4	14.6	15.5	15.9	16.4	16.8	16.9	17.3	17.5	17.8	18.0	18.6	19.1	19.6
Implicit debt	120.4	122.1	123.3	128.3	131.1	132.1	131.0	128.4	126.0	123.7	121.8	121.1	124.3	128.6	131.6
On-going equilibrium contribution rate (percentage)			10.0	14.0	17.3	20.7	22.6	23.2	22.7	22.1	21.1	20.6	20.9	23.1	24.8
On-going equilibrium replacement rate (percentage)			53.8	49.9	44.9	40.0	35.7	32.9	30.3	28.7	27.6	27.0	26.5	26.3	25.6
Debt generated by CGA			0.0	1.4	4.8	10.2	17.3	25.4	34.1	43.2	52.7	63.0	88.8	123.9	169.8
Total General Government expenditure w/CGA			0.0	0.5	1.0	1.6	2.2	2.7	3.1	3.5	3.8	4.3	5.6	7.6	10.1

Quadro A.8

PRE 1993 CGA REGIME – FINANCIAL VARIABLES

As a percentage of GDP

	1998	1999	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2055	2065	2075
Contributions by subscribers	1.0	1.0	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.4
Assumed contribution by General Government	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Other revenues	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Expenditure on pensions	3.5	3.5	3.6	4.1	4.5	5.0	5.5	5.9	6.3	6.7	6.9	7.0	7.3	7.7	8.0
Additional General Government expenditures w/CGA	0.0	0.0	0.0	0.5	0.9	1.4	1.8	2.2	2.7	3.0	3.2	3.3	3.6	4.0	4.4
Civil service wage bill	11.0	11.5	11.6	12.1	12.2	12.3	12.5	12.5	12.8	12.9	13.2	13.5	14.0	14.1	14.3
Total compensation of employees	13.9	14.4	14.6	15.6	16.1	16.7	17.4	17.8	18.5	19.0	19.6	20.0	20.8	21.3	21.9
Implicit debt	130.8	133.2	135.5	146.5	155.9	164.1	170.0	173.3	175.1	175.2	174.1	173.8	178.2	183.8	187.6
On-going equilibrium contribution rate (percentage)			10.0	14.2	17.8	22.0	25.8	29.5	32.7	35.4	36.3	36.5	37.7	40.2	42.3
On-going equilibrium replacement rate (percentage)			53.6	49.4	44.5	39.7	35.4	32.5	29.7	28.0	27.0	26.6	26.4	26.4	25.8
Debt generated by CGA			0.0	1.5	5.1	11.1	19.8	30.9	44.9	61.8	81.3	103.4	159.2	232.7	326.0
Total General Government expenditure w/CGA			0.0	0.5	1.1	1.8	2.7	3.6	4.7	5.9	7.0	8.2	11.1	15.0	19.9

ANNEX (Continued)

Table A.9

4 FOR 1 – FINANCIAL VARIABLES

As a percentage of GDP

	1998	1999	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2055	2065	2075
Contributions by subscribers	1.0	1.0	1.1	1.1	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.3
Assumed contribution by General Government	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Other revenues	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Expenditure on pensions	3.5	3.5	3.6	4.1	4.4	4.8	5.0	5.0	5.0	4.8	4.6	4.4	4.3	4.6	5.0
Additional General Government expenditures w / CGA	0.0	0.0	0.0	0.5	0.9	1.2	1.5	1.5	1.4	1.3	1.0	0.8	0.7	1.0	1.4
Civil service wage bill	11.0	11.5	11.6	11.4	11.3	11.3	11.4	11.3	11.6	11.9	12.3	12.6	13.0	13.1	13.3
Total compensation of employees	13.9	14.4	14.6	14.9	15.1	15.5	15.8	15.8	16.1	16.2	16.3	16.4	16.8	17.2	17.8
Implicit debt	119.1	120.6	121.6	125.0	125.9	124.9	121.6	116.6	111.7	107.3	104.0	102.7	106.3	111.5	114.6
On-going equilibrium contribution rate (percentage)			10.0	14.6	18.3	22.0	24.1	24.6	23.5	21.6	18.8	16.8	15.7	18.5	21.1
On-going equilibrium replacement rate (percentage)			53.8	49.0	44.1	39.4	35.6	33.1	30.8	29.6	28.9	28.7	28.7	28.4	27.4
Debt generated by CGA			0.0	1.5	5.1	10.9	18.3	26.6	35.2	43.8	51.8	59.6	77.5	102.4	136.8
Total General Government expenditure w / CGA			0.0	0.5	1.1	1.7	2.3	2.7	3.1	3.3	3.5	3.6	4.4	5.9	7.9

Table A.10

CIVIL SERVICE REDUCTION AFTER 2035 – FINANCIAL VARIABLES

As a percentage of GDP

	1998	1999	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2055	2065	2075
Contributions by subscribers	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3
Assumed contribution by General Government	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Other revenues	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Expenditure on pensions	3.5	3.5	3.6	4.1	4.5	4.8	5.1	5.1	5.1	5.0	4.9	4.8	4.8	5.1	5.3
Additional General Government expenditures w / CGA	0.0	0.0	0.0	0.4	0.8	1.2	1.4	1.5	1.5	1.4	1.2	1.1	1.1	1.5	1.8
Civil service wage bill	11.0	11.5	11.6	12.0	12.1	12.1	12.4	12.4	12.7	12.9	13.2	13.3	13.4	13.3	13.2
Total compensation of employees	13.9	14.4	14.6	15.4	15.9	16.3	16.8	16.9	17.2	17.4	17.5	17.5	17.6	17.8	18.1
Implicit debt	120.1	121.8	122.9	127.6	129.8	130.1	128.2	124.6	121.3	117.9	115.1	113.7	116.3	120.2	122.4
On-going equilibrium contribution rate (percentage)			10.0	13.9	16.9	20.1	22.0	22.6	22.1	21.2	19.9	19.0	19.0	21.7	24.1
On-going equilibrium replacement rate (percentage)			53.8	50.1	45.2	40.3	36.0	33.2	30.6	28.9	27.6	26.8	26.1	26.1	25.7
Debt generated by CGA			0.0	1.4	4.6	9.9	16.9	24.9	33.4	42.2	51.1	60.3	82.9	113.7	154.8
Total General Government expenditure w / CGA			0.0	0.5	1.0	1.6	2.2	2.6	3.0	3.3	3.6	4.0	5.1	6.9	9.1

January*

7 January (Regulation no. 8/2001 of the Stock Market Commission, Official Gazette no. 299, Supplement, Series II)

Pursuant to the provisions set forth in subparagraph n) of Article 9 and Article 26 of the Statute of the Stock Market Commission, approved by Decree-Law no. 473/99, of 8 November, and in subparagraph b) of paragraph 1 of Article 353 of the Stock Market Code, approved by Decree-Law no. 486/99, of 13 November, sets the rates to the paid to the Stock Market Commission. Revokes Regulation no. 35/2000, of 14 December. This Regulation takes effect on 1 January 2002.

7 January (Circular Letter of Banco de Portugal no. 1/2002/DET)

Informs about the process of exchanging banknotes and coins denominated in escudos for banknotes and coins denominated in euro, namely about the provisions set forth in Articles no. 3, 4 and 6 of Decree-Law no. 117/2001, of 17 April. The afore-mentioned exchange cannot be subject to restrictions that are not provided for by law. It also makes known that the charging of fees or any other type of commissions is against the legal tender status of the currency.

15 January(Decree-Law no. 8-D/2002, Official Gazette no. 12, 2nd Supplement, Series I - A)

Amends Decree-Law no. 394/99 of 13 October, which approved the legal framework of managing companies of transferable securities markets and related systems, publishing it again.

23 January (Decision no. 1598/2002, Official Gazette no. 19, Series II)

Under the terms laid down in paragraph 1 of article 63 of Law no. 5/98 of 31 January, approves the introduction of adjustments in the Chart of Accounts of Banco de Portugal which shall be applied to the 2001 fiscal year accounts.

23 January (Circular Letter of Banco de Portugal no. 8/02/DSBDR)

Clears doubts on the prudential framework of securities with a higher degree of subordination, issued within the scope of securitisation operations, held by entities which, albeit belonging to the group of the institutions which has originally sold the assets, are not subject to the provisions set forth in Notice no. 10/2001 of 6 November.

26 January (Council Regulation (EC) no. 134/2002, OJEC L 24)

Amends paragraph 2 of article 7 of Council Regulation (EC) No. 2531/98 of 23 November 1998 concerning the application of minimum reserves by the European Central Bank.

February

4 February (Circular Letter of Banco de Portugal no. 2/DMR)

Following Circular Letter no. 347/DMR of 27 October 1999, fixes the rate of return of Deposit Securities, Series B, at 3.34%, for the quarterly accounting period to start on 4 February 2002.

5 February (Regulation no. 1/2002 of the Stock Market Commission, Official Gazette no. 30, Series II)

Pursuant to the provisions set forth in paragraph 1 of article 36 of Decree-Law no. 453/99, of 5 November, establishes a regime to which the accounts of the credit securitisation funds must adhere.

6 February (Executive Order no. 113-B/2002, Official Gazette no. 31, Supplement, Series I - B)

In accordance with paragraph 3 of article 1 of Decree-Law no. 88/94, of 2 April, establishes that government debt securities issued pursuant to the provisions set forth in Cabinet Resolution no. 9-A/2002, of 12 January, shall be added to the list published in Executive Order no. 377-A/94, of 15 June.

9 February (Regulation no. 4/2002 of the Stock Market Commission, Official Gazette no. 34, Series II)

Pursuant to the provisions set forth in subparagraph b) of paragraph 1 of article 353 of the Stock Market Code, and in accordance with paragraph 2 of article 47-A and article 47-B, which form part of Decree-Law no. 276/94, of 2 November, lays down the terms and conditions on which entities managing securities investment funds may constitute index-linked funds and guaranteed funds.

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

11 February (Regulation no. 3/2002 of the Stock Market Commission, Official Gazette no. 35, Series II)	In accordance with Decree-Law no. 276/94, of 2 November, lays down the rules applicable to securities investment funds in respect of the valuation of their assets, the costs which may be imputed to them, and the calculation of the value of the investment units and the action taken by the managing entities whenever errors occur. Revokes Regulations no. 16/99, of 14 October, 4/2000, of 16 February, and 26/2000, of 19 August.
13 February (Circular Letter of Banco de Portugal no. 5/DET)	Provides information to credit institutions on the procedures to be adopted regarding the deposit of euro-denominated banknotes with the Banco de Portugal.
13 February (Circular Letter of Banco de Portugal no. 6/DET)	Following a Decision of the European Central Bank of 3 December 2001, provides information on the conditions under which the Banco de Portugal will exchange legal tender euro-denominated banknotes, which are mutilated or damaged. The above-mentioned Decision became effective on 1 January 2002.
13 February (Directive 2001/108/EC of the European Parliament and of the Council, OJ L41)	Amends Council Directive 85/611/EEC on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS), with regard to investments of UCITS. Member States shall adopt, up to 13 August 2003, at the latest, the legal, regulatory and administrative provisions required to enforce the above-mentioned Directive. Member States shall forthwith inform the Commission thereon. Member States shall implement these measures up to 13 February 2004, at the latest.
14 February (Circular Letter of Banco de Portugal no. 17/02/DSBDR)	Establishes that a report shall be sent to Banco de Portugal, on a half-yearly basis, quantifying the economic provisions required for the coverage of risk implicit in a credit portfolio.
15 February (Decision no. 3497/2002, Official Gazette no. 39, Series II)	Pursuant to the provisions set forth in paragraph 2 of article 74 of Law no. 109-B/2001, of 27 December, authorizes the Public Credit Management Institute to intervene in the secondary public debt market as a party in repurchase operations, based on securities representing the direct public debt quoted in the special public debt market (MEDIP - *mercado especial de dívida pública*).
15 February (Instruction of Banco de Portugal no. 3/2002, BNBP no. 2/2002)	Provides for a simulation exercise of a regime known as anti-cycle or dynamic provisioning.
15 February (Instruction of Banco de Portugal no. 4/2002, BNBP no. 2/2002)	Defines the information elements relating to liabilities on account of retirement and survivorship pensions that must be sent to Banco de Portugal. Revokes Instruction no. 13/99, published in BNBP no. 6, of 15 June 1999.
19 February (Circular Letter of Banco de Portugal no. 11/DPGCO)	Warns credit institutions that, following some complaints about the printing of a deadline on euro-denominated cheques, they must take into account some aspects related to their obligations to provide information to their customers in the case of contracts associated with cheque movements in deposit accounts.
20 February (Circular Letter of Banco de Portugal no. 18/02/DSBDR)	Makes known that Banco de Portugal has decided to change the valuation criterion mentioned in item b) of number 1 of Chapter V of the Chart of Accounts for the Banking System, following suggestions made by some institutions in order to be able to value their portfolios at the prices prevailing in the special public debt market (MEDIP - *mercado especial de dívida pública*). Also informs that this change is valid, in accordance with paragraph 10 of Notice no. 3/95, for the calculation of capital losses on investment portfolio securities and the setting up of the corresponding provisions. The above-mentioned change takes effect on 1 March 2002.

March

2 March (Decree-Law no. 42/2002, Official Gazette no. 52, Series I - A)	Establishes the legal framework of electronic money institutions. Transposes into the Portuguese legal system Directive 2000/28/EC, of the European Parliament and of the Council of 18 September 2000 amending Directive 2000/12/EC, of 20 March, relating to the taking up and pursuit of the business of credit institutions, and Directive 2000/46/EC of the European Parliament and of the Council of 18 September 2000 on the taking up, pursuit of and prudential supervision of the business of electronic money institutions.
13 March (Notice of Banco de Portugal no. 1/2002, Official Gazette no. 61, Series I - B)	Redefines the Direct Debiting System. Revokes Notice no. 3/2000, of 11 August, published in Official Gazette no. 193, Series I - B, of 22 August 2000.
14 March (Regulation no. 5/2002 of the Stock Market Commission, Official Gazette no. 62, Series II)	Introduces changes in articles 29, 31, 32 and 34 of Regulation no. 5/2000, of 23 February, which governs the operation of markets, in general, and of stock markets, in particular. This Regulation was amended by Corrigendum no. 686/2002, of 14 March, published in Official Gazette no. 74, Series II, of 28 March 2002.
14 March (Circular Letter of Banco de Portugal no. 10/DET)	Calls the attention to the fact that the rules set forth in Decree-Law no. 117/2001, of 17 April shall be complied with in the exchange into euro of banknotes and coins denominated in escudos. This Circular Letter also emphasises the recommendations laid down in Circular Letter no. 1/DET, of 7 January 2002.
20 March (Decree-Law no. 60/2002, Official Gazette no. 67, Series I - A)	Approves the new legal framework of real estate investment funds, which shall enter into force 90 days after publication. With the entry into force of this legal framework, Decree-Law no. 294/905, of 17 November, as amended by Decree-Law no. 323/97, of 26 November, shall be revoked.
20 March (Decree-Law no. 61/2002, Official Gazette no. 67, Series I - A)	Rewords articles 16 and 17 of the Stock Market Code, approved by Decree-Law no. 486/99, of 13 November.
20 March (Decree-Law no. 62/2002, Official Gazette no. 67, Series I - A)	Rewords articles 7, 8, 18 and 35 of Decree-Law no. 276/94, of 2 November, as worded by Decree-Law no. 323/99, of 13 August, which lays down the legal framework of real estate investment funds.
27 March (Executive Order no. 323/2002, Official Gazette no. 73, Series I - B)	Introduces changes in articles 1, 3, 4 and 6 and adds articles 3-A and 7-A to Executive Order no. 1303/2001, of 22 November, so as to widen the incidence base of the supervision rates to be paid to the Stock Market Commission.
27 March (Notice of Banco de Portugal no. 2/2002, Official Gazette no. 88, Series I - B)	Adds paragraph 2 - A to Notice no. 1/95 of 17 February, on the provision of information on services and products that may be requested or purchased through the Internet. This Notice takes effect within 30 days as of the date of its publication.

April

5 April (Decree-Law no. 82/2002, Official Gazette no. 80, Series I - A)	Introduces changes in articles 4 to 7, 12, 16, 17, 19, 23, 27, 28, 34, 37 and 38 and in Chapters III and IV of Decree-Law no. 453/99, of 5 November, which defines the system governing the securitisation of credit. Decree-Law no. 453/99, as amended by Decree-Law no. 82/2002, shall be republished in attachment.
26 April (Circular Letter of Banco de Portugal no. 6/DMR)	Following Circular Letter no. 347/DMR of 27 October 1999, fixes at 3.30%, the rate of return of the Certificates of Deposit, Series B, to prevail in the quarter started on 4 May 2002.

30 April (Executive Order no. 505/2002, Official Gazette no. 100, Series I - B)

Pursuant to the provisions laid down in article 5 of Decree-Law no. 232/96 of 5 December, and for the purposes of Council Directive 93/22/EEC, approves the list of regulated markets. Revokes Executive Order no. 27/99 of 18 January.

May

4 May (Decree-Law no. 122/2002, Official Gazette no. 103, Series I - A)

Approves the legal framework of the new series of saving certificates. Rewords article 7 of Decree-Law no. 172-B/86 of 30 June, and articles 18 and 19 of Decree-Law no. 43454 of 30 December 1960.

7 May (Regulation no. 6/2002 of the Stock Market Commission, Official Gazette number 105, Series II)

In accordance with the provisions laid down in sub-paragraph b), of article 247 and in article 11 of the Stock Market Code, and within the scope of the obligation to provide financial information to the market, lays down that the issuers of transferable securities listed in a regulated market must compulsorily prepare and publish information by batches. This regulation shall be applicable as from the disclosure of the annual accounts for the fiscal year started on or after 1 January 2002 and whose disclosure takes place after the entry into force of this regulation. With respect to entities that have not adopted the Official Chart of Accounts, as for instance, credit institutions and financial companies, this regulation shall only be applicable as from the date of publication of a subsequent regulation by the Stock Market Commission.

8 May (Regulation no. 7/2002 of the Stock Market Commission, Official Gazette no. 120, Series II)

Recognises certificates as a new type of transferable security, defines their concept and identifies their different forms; pursuant to the provisions of this Regulation, these certificates shall be subsidiarily subject to the regime applicable to covered warrants.

15 May (Instruction of the Banco de Portugal no. 8/2002, BNBP 5/2002)

Revokes Instruction no. 70/96, published in BNBP no. 1, of 17 June 1996. Establishes mechanisms preventing the utilisation of the Portuguese financial system for money laundering purposes.

21 May (Notice of Banco de Portugal no. 3/2002, Official Gazette no. 129, Series I - B)

Changes part I of the annex to Notice no. 1/93, of 8 June 1993, adding paragraph 10, relating to own funds requirements applicable to the irrevocable payment commitments arising from the compulsory contributions to the Deposit Guarantee Fund.

31 May (Law no. 16-A/2002, Official Gazette no. 125, Series I - A, Supplement)

Introduces changes in the State Budget for 2002, approved by Law no. 109-B/2001, of 27 December, in the part relating to the annexed tables I to IV, replacing them accordingly with other tables with an equal numbering. Provides for the extinction, restructuring and merger of several bodies and lays down several provisions, many of which are of a tax nature; the several ordinances referred to have been amended accordingly, except for table I, mentioned in paragraph 1 of article 8 of the Regulation relating to the Municipal Vehicles Tax (*Imposto Municipal sobre Veículos*), approved by Decree-Law no. 143/78, of 12 June; paragraph 3 of the above-mentioned article 8, which had been previously revoked, shall be retained, article 10 being amended. Rectified by Corrigendum no. 21-A/2002, of 31 May.

June

18 June (Regulation no. 8/2002 of the Stock Market Commission, Official Gazette no. 138, Series II, Supplement)

Under the provisions of article 60 of Decree Law no. 60/2002, of 20 March, lays down a set of rules that constitute the legal framework of real estate investment funds. Revokes Regulations no. 96/03, of 29 March, no. 97/11, of 26 July, and no. 98/05, of 27 May. This Regulation takes effect on 18 June 2002.

19 June (Executive Order no. 676/2002, Official Gazette no. 139, Series I - B)

Under the provisions of paragraph 1 of article 95 and paragraph 1 of article 196 of the Legal Framework of Credit Institutions and Financial Companies, approved by Decree Law no. 298/92, of 31 December, as well as of paragraph 3 of article 40 of Decree Law no. 453/99, of 5 November,

changes the minimum capital stock of credit securitisation funds management companies and credit securitisation companies. Revokes Executive Order no. 284/2000, of 23 May.

25 June (Notice of Banco of Portugal no. 4/2002, Official Gazette no. 144, Series I - B)

Establishes the prudential regime of capital losses inherent in financial participations (minimum provisioning levels and deductions from own funds). Introduces changes in Notices no. 3/95, of 30 June, and no. 12/92, of 29 December. This Notice takes effect on 30 June 2002.

26 June (Regulation no. 35/2002 of the Instituto de Seguros de Portugal (Rule no. 12/2002-R), Official Gazette no. 145, Series - II)

Introduces changes in the chart of accounts of pension funds. Rewords paragraph 3.2. and adds paragraphs 3.4 and 3.5 to regulatory rule no. 12/95-R, of 6 July.

26 June (Regulation no. 33/2002 of the Instituto de Seguros de Portugal (Rule no. 10/2002-R), Official Gazette no. 145, Series II)

Lays down the rules applicable to securities repurchase and lending operations carried out in pension funds by their management companies that operate in Portugal, as well as to their accounting.

26 June (Regulation no. 32/2002 of the Instituto de Seguros de Portugal (Rule no. 9/2002-R), Official Gazette no. 145, Series II)

Lays down the rules applicable to securities repurchase and lending operations carried out by insurance corporations that operate in Portugal or abroad, which are subject to the supervision of the Instituto de Seguros de Portugal (Portuguese Insurance Institute), as well as to their accounting.

26 June (Regulation no. 30/2002 of the Instituto de Seguros de Portugal (Rule no. 7/2002-R), Official Gazette no. 145, Series II)

Lays down the rules applicable to the use and accounting record of derivative instruments by insurance corporations that operate in Portugal or abroad, which are subject to the supervision of the Instituto de Seguros de Portugal. Revokes rule no. 15/98-R, of 20 November.

26 June (Regulation no. 31/2002 of the Instituto de Seguros de Portugal (Rule no. 8/2002-R), Official Gazette no. 145, Series II)

Lays down the rules applicable to the use and accounting record of derivative instruments in pension funds by their management companies that operate in Portugal. Revokes rule no. 16/98-R, of 20 November.

26 June (Regulation no. 34/2002 of the Instituto de Seguros de Portugal (Rule no. 11/2002-R), Official Gazette no. 145, Series II)

Introduces changes in the chart of accounts of insurance corporations, approved by regulatory rule no. 7/94-R, of 27 April, as amended by regulatory rule no. 14/95-R, of 20 July.

July

2 July (Regulation no. 9/2002 of the Stock Market Commission, Official Gazette no. 150, Series II)

Rewords article 53 of Regulation no. 10/2000, of 23 February (issues of covered warrants) of the Stock Market Commission.

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