DISINFLATION AND FISCAL POLICY IN PORTUGAL: 1990-2002*

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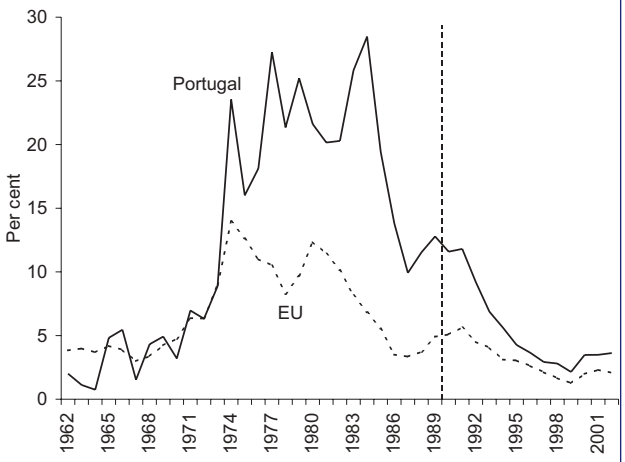
1. INTRODUCTION

Following the implementation of the economic stabilization agreement of 1983 with the IMF and the favourable developments in international oil prices and other commodities by the middle of the eighties, Portugal initiated a disinflation process that lasted until 1998(1). Inflation measured by the private consumption deflator reached a figure close to 30 per cent in 1984, decreasing afterwards to close to 2 per cent in 1997-1998, before the outset of the third phase of the Economic and Monetary Union (EMU). The differential to the European Community average stood at 14 percentage points (p.p.) in 1986, the year of Portugal's accession, dwindling to 1 p.p. from 1995 to 1999. From 2000 to 2002 it stood close to 1.5 p.p. (Chart 1).

Chart 1
PRIVATE CONSUMPTION DEFLATOR



Source: European Commission (AMECO database, Autumn 2003).

Between 1985 and 1998 the general government deficit declined from about 10 per cent of GDP to a figure around 3 per cent of GDP, following the present accounting rules of the excessive deficit procedure (ESA 95) (Chart 2). However, this process was not continuous. Until 1989 a sizeable deficit reduction took place. From 1990 to 1993 the trend was reversed owing to an adverse combination of expansionary discretionary measures and cyclical effects, with the exception of 1992, when a major change of VAT rates led to a substantial increase of tax receipts. From 1994 onwards the declining trend of the deficit resumed as a consequence of the fall in interest payments as a ratio to GDP, enhanced in a first moment by discretionary measures(2) and afterwards by particularly favourable cyclical effects, partially resulting from the composition of expenditure and income. However, excluding interest payments and the impact of the economic cycle, the stance of the fiscal policy was clearly expansionary from 1995 to 2001, as it is shown by the reduction of the cyclically adjusted primary balance every year during that period (Chart 3). Behind this outcome was the return to a sustained growth of primary current expenditure,

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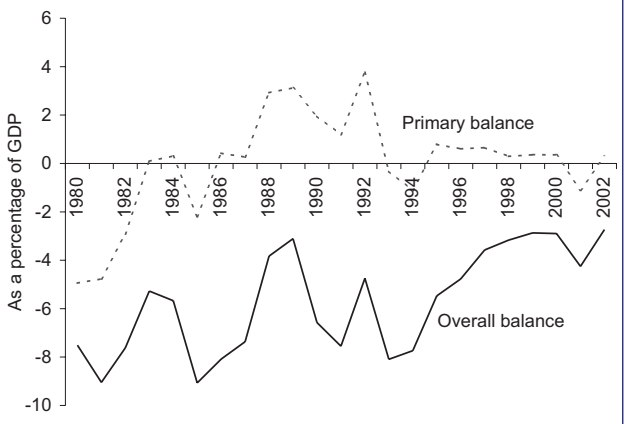
(1) See Abreu (2001).

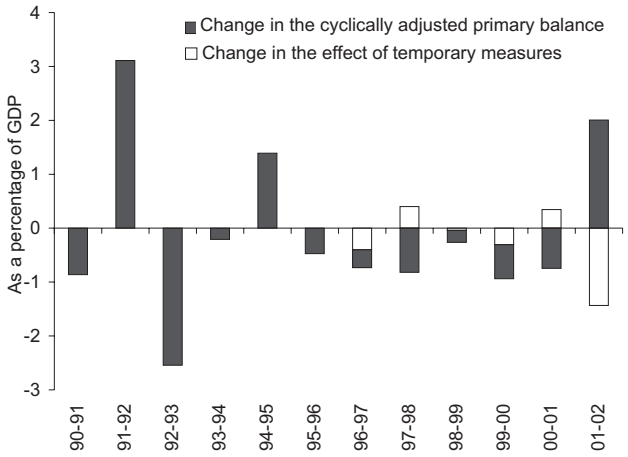
(2) In particular, the modest update of civil servants wages in 1994, the decline in the number of general government employees in 1993 and 1994 and the gradual increase in the retirement age of women from 1994 to 1999.

Chart 2
GENERAL GOVERNMENT BALANCES (ESA95)



Sources: *Instituto Nacional de Estatística* and Banco de Portugal.

Chart 3
CHANGE IN THE CYCLICALLY ADJUSTED PRIMARY BALANCE



Sources: European Commission and Banco de Portugal.

as it had already been observed at the beginning of the nineties. This growth was mainly explained by the increases of the civil servants wage bill, due to the rise in the number of public employees and extraordinary revisions of specific careers, and of the expenditure with pensions, both in the general and the civil servants systems.

The steady growth of primary current expenditure was compatible with the deficit reduction as long as interest expenditure was declining and the cyclical component had a positive impact. However, as interest expenditure stabilised as a ratio to GDP and the economy activity decelerated, the deficit clearly exceeded the reference value of 3 per cent of GDP, reaching 4.2 per cent of GDP in 2001. In 2002, in order to keep the deficit below 3 per cent of GDP, it was necessary to tighten procyclically the fiscal policy and to implement temporary measures corresponding to about 1.5 per cent of GDP.

The goal of this paper is threefold. Firstly, to analyse how disinflation contributed to the decline of the general government deficit in Portugal during the nineties[3]. Secondly, to quantify the impact on the deficit of the decrease in interest expenditure resulting from disinflation. Finally, as the leeway created by the decline in interest payments would have justified a more marked reduction of the deficit, the current fiscal position in Portugal is simulated assuming that the fiscal policy had not shown the expansionary stance mentioned above.

Section 2 summarises the references in the literature to the several channels through which inflation may influence budgetary outcomes and discusses the importance of each one in Portugal in the recent past. Section 3 presents an estimate of the impact of disinflation on the cyclically adjusted deficit of general government as a ratio to potential GDP[4] via interest expenditure assuming that the implicit interest rate on public debt[5] deflated by the consumer price index (CPI) was the one actually observed and inflation did not change from the 1990 level. Section 4 summarises a simulation of the Portuguese budgetary outcomes assuming that the room for manoeuvre created by the decline in interest expenditure had not been

(3) The analysis was not extended to the period from 1984 to 1989 due to major differences in the institutional set up, concerning, in particular, the tax system and the public debt management.

(4) The baseline cyclically adjusted deficit is based on the European Commission calculations following the most recent methodology. The nominal potential output also results from European Commission estimates.

(5) In this paper, the implicit interest rate on public debt of period *t* is defined as the interest expenditure of period *t* divided by the stock of debt at the end of period *t-1*. A definition based on the average of the stock of debt at the end of *t-1* and *t* would be more suitable. However, it would give rise to circular references in the simulation exercises.

used to take discretionary measures increasing primary current expenditure, namely in the areas of personnel expenditure and social payments. Section 5 presents the conclusions of this paper.

2. THE FISCAL IMPACT OF DISINFLATION: THE PORTUGUESE CASE FROM 1990 TO 2002

The literature on the fiscal impact of inflation/disinflation is quite limited. It deals predominantly with the effects of inflation on tax receipts and, in most cases, analyses aspects that are only important for very large levels or changes in inflation. On the expenditure side it appears difficult to generalize an automatic relationship between the level of public expenditure and the inflation rate. Interest expenditure is an exception. Indeed, it is commonly accepted that a change in expected inflation implies almost automatically a change in the same direction not only in the level of nominal interest expenditure but also in its ratio to GDP.

Concerning the effects of inflation on tax receipts three channels are most frequently highlighted(6). Firstly, the lags in tax collection reduce real receipt to an extent that grows with inflation (Tanzi effect). Secondly, the tax burden increases as households or individual taxpayers move to higher tax brackets in the framework of a progressive income tax not fully indexed. The magnitude of this effect increases with inflation and decreases with the degree of indexation of the income tax. Finally, in the corporate income tax, the real value of depreciation allowances and some deductions declines with inflation as they are fixed in nominal terms, increasing the tax burden.

In the Portuguese case, by the middle of the eighties, the tax collection lag was responsible for a substantial loss of real revenue. However, the sharp reduction in the inflation rate until 1987 and, above all, the 1989 reform of income taxation suggest that this effect was minor along the nineties. The income tax reform was important in this sense, as it increased substantially withholding schemes, allowing the moment of tax collection to become on average much closer to the moment when income is received. In the case of personal income taxation net reimbursements were positive, increasing steadily. This means that withheld amounts exceeded to a growing extent the amounts actually due, given the incomes received. Indeed, households on aggregate have been lending compulsorily significant sums to the State, without interest. The decrease of inflation from the 1990 level reduced gradually the real value of these loans to the State to an amount that in 2002 still fell short of 0.1 p.p. of GDP. This effect was actually minor and was still partially compensated by an effect in the opposite direction in the corporate income tax, whose receipts concerning the profits of one year are not totally collected in the same year.

The 1989 reform of income taxation did not include an automatic indexation of the tax brackets and other parameters of the personal income tax. Nevertheless, in practice, the annual discretionary updates of the tax parameters have been leading to adjustments that, in trend terms, are not very far from full indexation, though imperfect, coexisting in some years with discretionary measures aiming at the reduction of the tax burden or the change in its impact on income distribution. Table 1 shows the inflation rate taken into account in the elaboration of the State Budgets, the actual inflation rate and the update of the main parameters of the personal income tax. In this context, and considering also the relatively low level of inflation at the beginning of the nineties, disinflation by itself does not appear to have caused a significant impact on tax receipts via the fiscal drag.

The data available are not detailed enough to estimate the impact of disinflation on the tax burden of the corporate income tax, through the increase of the real value of depreciation allowances and some deductions.

The direct impact of disinflation on interest expenditure results from the fact that, as public debt is defined in nominal terms, part of interest expenditure aims at compensating the holders of debt for the erosion of its real value caused by inflation. Assuming, for the sake of simplification, that nominal interest rates adjust to expected inflation keeping unchanged the real expected interest rate (Fisher effect) and that actual inflation equals expected inflation, it is possible to demonstrate that if inflation decreases, interest expenditure declines more than proportionally to nominal GDP, leading to a reduction of the general government deficit as

(6) See Dornbusch, Sturzenegger and Wolf (1990) and Rosen (1995).

Table 1

INFLATION AND THE UPDATE OF THE PERSONAL INCOME TAX PARAMETERS

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Observed inflation[a]	13.4	11.4	8.9	6.5	5.2	4.1	3.1	2.2	2.8	2.3	2.9	4.4	3.6
Inflation assumed in the Budgets[b]	10.0	10.8	9.3	6.5	4.7	4.0	3.3	2.4	2.0	2.0	2.0	2.8	2.8
Update of the personal income tax withholding tables	20.0	16.2	9.6	7.5	3.0	5.0	3.5	2.9	2.5	2.4	2.7	8.0	8.0
Update of the specific deduction of employment income	20.0	13.3	11.2	5.8	4.0	5.8	5.7	4.1	3.9	5.5	4.1	5.0	4.1
Update of the personal income tax brackets	20.0	(c)	8.0/10.8	6.2/6.4	8.0/8.1	4.0/4.3	3.6/4.1	2.5/4.0	2.1/2.9	(d)	2.7/4.3	(e)	2.7

Notes:
(a) Measured by the consumer price index.
(b) Measured by the private consumption deflator.
(c) Decrease of the number of brackets and change in part of the marginal tax rates.
(d) Introduction of a new bracket.
(e) Introduction of a new bracket and reduction of the marginal tax rates, with the exception of the highest one.

a ratio to GDP. According to some literature, this effect depends on the change in the inflation rate and the magnitude of the stock of short-term and medium and long term floating rate debt denominated in domestic currency[7]. However, on average, higher inflation would also imply a more than proportional increase of interest payments on debt denominated in foreign currencies via a further depreciation of the national currency. Thus, in periods characterised by large fluctuations in the inflation rate, the deficit adjusted for inflation and the primary deficit should be favoured as indicators for fiscal analysis. It should also be referred that a change in the inflation rate may be associated with a change in the risk premium included in interest rates, in particular, in the framework of a transition to a new economic regime. This change in the risk premium, as it affects the implicit interest rate of public debt deflated by the CPI, may have a considerable impact on the general government deficit.

In 1990, the debt ratio stood at about 58 per cent. Public debt was then predominantly composed by short-term instruments like Treasury bills and by floating-rate instruments as savings certificates and most bonds issued and loans contracted in the domestic market. Public debt denominated in foreign currencies represented slightly more than 10 per cent of the overall debt. In this context, a decrease in the inflation rate would necessarily have an impact on the public debt interest rates with a very short lag, reducing interest expenditure as a ratio to GDP, even if real interest rates were unchanged. In the next section the magnitude of this effect is calculated, considering some simplifying assumptions.

From 1992-1993 onwards, the nominal convergence required to ensure the participation of Portugal, from the outset, in the third phase of EMU became the key objective of economic policy. Until 1993 there were still increases in the implicit interest rate of public debt deflated by the CPI mainly explained by three factors (Chart 4). Firstly, the gradual substitution of tax exempt public debt by public debt subject to income taxation from 1989 onwards. Secondly, the substitution of public debt with interest rates below the market ones by public debt, held by financial institutions still in a context marked by the existence of credit ceilings and other constraints, by public debt with market interest rates. Finally, the tightening of monetary and exchange rate policy. As the convergence policy enhanced its credibility, the level of interest rates, as well as its differentials to other countries, recorded a sharp reduction, mainly as a result of the declines in the expected depreciation and in the risk premium. Chart 5 shows the evolution of nominal long-term interest rates (10 years) in Germany and Portugal between 1993 and 2002[8].

According to an authors estimate, between 1993 and 1998, the cumulative effect on the general gov-

(7) See Tanzi, Blejer and Teijeiro (1993).

Chart 4
IMPLICIT INTEREST RATE ON PUBLIC DEBT AND INFLATION

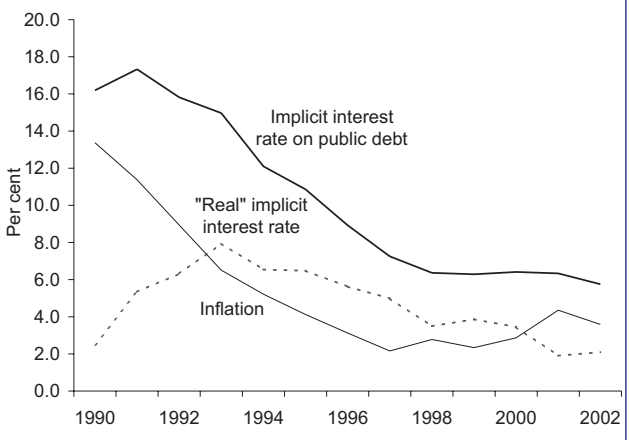
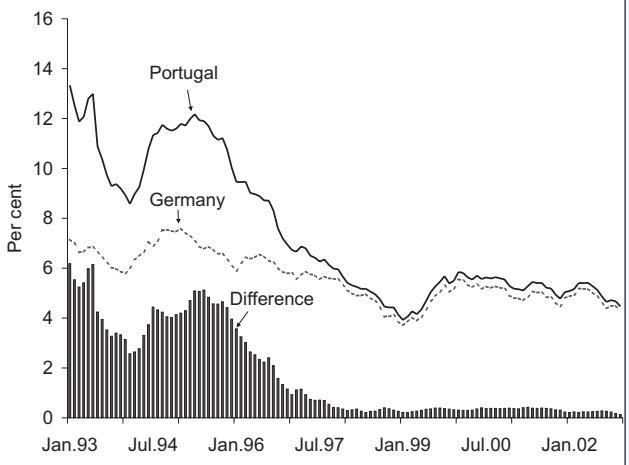


Chart 5
LONG-TERM INTEREST RATES
10 years, monthly averages



Source: Reuters.

ernment deficit resulting from the decrease in the interest rate differential relatively to Germany amounted to around 2.6 p.p. of GDP[9]. From 1999 onwards, implicit interest rates on public debt are only influenced by interest rates in the euro area, with small differentials relative to other countries explained by differences in the liquidity of the secondary market of Treasury bonds and in the risk premiums.

3. THE DIRECT EFFECTS OF DISINFLATION ON INTEREST RECEIPTS AND EXPENDITURE: SIMULATION RESULTS FOR PORTUGAL

The objective of this section is to quantify the direct impact of the disinflation process on the cyclically adjusted general government balance through interest rate changes. For that purpose the evolution of interest expenditure from 1991 until 2002 is simulated assuming that inflation throughout that period would remain at the 1990 figure, though keeping the implicit interest rate of public debt deflated by the CPI at the observed levels (Chart 6). This exercise is purely mechanical and does not intend to build a consistent macroeconomic scenario alternative to the integration of Portugal in the European Community/European Union. Several other caveats should be highlighted. Firstly, as the actual average tax rate on public debt interest is unknown, it was not possible to keep the implicit interest rate after tax unchanged. Indeed, the overall amount of tax receipts resulting from the taxation of public debt interest is not available and the legal changes that occurred during the period under analysis do not allow its estimation. Secondly, the composition of the debt is ignored, being assumed that it would not prevent higher inflation to be fully reflected in the implicit interest rate of the public debt. Finally, it is also not taken into account the eventual negative relation between inflation and the real interest rate through the Mundell-Tobin effect[10] and/or the Feldstein-Summers effect[11]. In the literature the empirical studies testing the existence of these effects in different countries lead to different con-

(8) Having in mind the uncovered interest parity condition in the case of risk averse agents

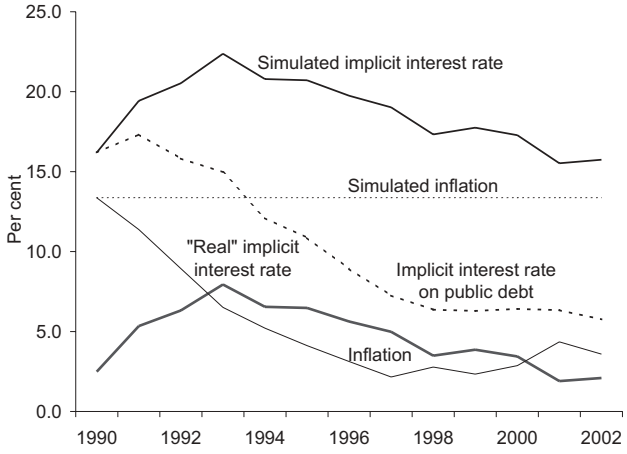
$$i_t = i_t^* + \left(E_{t+1}^t - E_t\right) / E_t + \psi_t,$$

the difference between the Portuguese and the German long-term interest rates would include the risk premium and the expected depreciation of the escudo in relation to the deustche mark in the period 1993-1998.

(9) An alternative exercise for the same period, keeping the implicit interest rate on public debt deflated by the CPI unchanged at the 1993 level, would lead to an estimate for the cumulative impact on the deficit of 2.7 p.p. of GDP.

(10) According to the Mundell-Tobin effect higher inflation would reduce the demand for money and would increase the demand for interest-bearing assets and/or real capital. Therefore, the required return on bonds and/or marginal productivity of capital would fall and the real interest rate would decline.

Chart 6
IMPLICIT INTEREST RATE ON PUBLIC DEBT AND INFLATION



clusions. Additionally, for the specific case of Portugal, there is no estimation of the magnitude of these effects and, as such, they cannot be considered in the simulation.

For the sake of consistency, two items on the receipt side were adjusted accordingly. The first one was interest receipts, though they represented a small percentage of GDP in most of the period under analysis. Personal income tax receipts were also calculated again as higher interest rates should lead to a rise in tax collection. Regarding public debt, this effect was only taken into account for saving certificates that are subject to a final withholding tax rate of 20 per cent. For the other instruments, predominantly held by the resident financial sector and by non-residents, no additional tax receipts were considered. For the resident financial sector a rise in the tax payments related to the additional interest is not possible to estimate since it would be included in the collectable income of each firm and, as such, would be subject to different actual corporate income tax rates. Portuguese public debt bonds held by non-residents only became relevant after ceasing to be subject to withholding taxation. Concerning other financial instruments held by households, final withholding tax receipts were revised following the new level of inflation.

Table 2 presents the simulation results for the inflation effects on the main fiscal indicators via changes in nominal interest rates. As far as the cyclically adjusted primary balance as a percentage of potential GDP[12] is concerned, excluding both

(11) At the corporate level, a rise in inflation would increase the effective tax rate since the depreciation allowances and the deduction of interest payments are defined in nominal terms and are not significantly affected by inflation. This increase in the cost of capital due to higher inflation that would lead to a fall in the real interest rate is usually known as the Feldstein-Summers effect.

(12) For obtaining the new fiscal variables as a percentage of a potential GDP compatible with the changes introduced, the GDP deflator was modified in each year in the same amount of the adjustment in inflation.

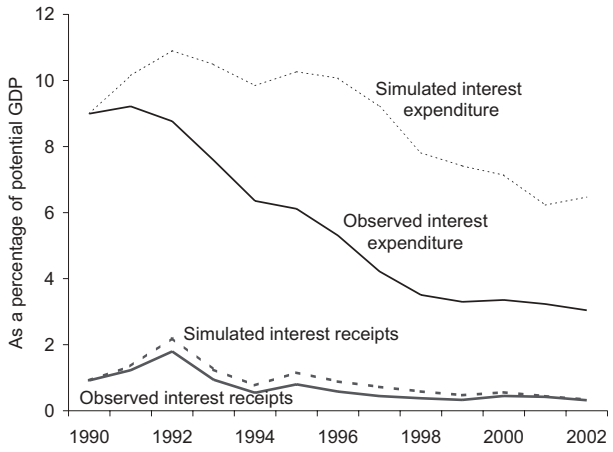
Table 2

RESULTS OF THE INTEREST RECEIPTS AND EXPENDITURE SIMULATION

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Cum. 1990 /2002
Differences vis-à-vis the baseline (p.p.)														
Annual rates														
Inflation	0.0	2.0	4.4	6.9	8.2	9.3	10.2	11.2	10.6	11.0	10.5	9.0	9.8	
Nominal potential GDP growth	0.0	2.1	4.6	7.1	8.4	9.5	10.5	11.5	10.9	11.4	10.8	9.3	10.0	
Changes as a ratio to potential GDP (p.p.)[a]														
Interest receipts	0.0	0.1	0.3	-0.1	-0.1	0.1	-0.1	0.0	-0.1	-0.1	0.0	-0.1	0.0	0.0
Interest expenditure	0.0	0.9	1.2	0.8	0.6	0.7	0.6	0.2	-0.7	-0.2	-0.3	-0.8	0.4	3.4
Personal income tax	0.0	0.1	0.2	0.2	0.1	0.1	0.1	-0.1	-0.1	-0.1	0.1	0.1	-0.1	0.6
Cyclically adjusted overall balance	0.0	-0.7	-0.7	-0.7	-0.6	-0.4	-0.6	-0.3	0.5	0.0	0.4	0.7	-0.4	-2.8
Cyclically adjusted primary balance[b]	0.0	0.1	0.2	0.2	0.1	0.1	0.1	-0.1	-0.1	-0.1	0.1	0.0	0.0	0.6
Public debt	0.0	-0.2	-0.7	-0.8	-0.7	-1.1	-1.2	-1.0	-0.8	-0.6	-0.8	-0.5	-0.4	-8.9

Notes:
(a) Annual changes taking into account the cumulative effects until the end of the previous year.
(b) Excludes interest both on the receipt and expenditure sides.

Chart 7
OBSERVED AND SIMULATED INTEREST RECEIPTS AND EXPENDITURE



interest on the receipt and the expenditure sides, the effect of higher interest rates would have amounted to 0.6 p.p. of potential GDP in 2002. As already mentioned, this impact is only due to changes in the personal income tax receipts. Interest receipts would have been barely affected. On the contrary, the rise in interest expenditure would have been very significant, reaching 3.4 p.p. of potential GDP in 2002. Thus, the increase in the cyclically adjusted deficit by 2.8 p.p. of potential GDP in 2002 would have stemmed essentially from higher interest expenditure, only partially compensated by the rise in tax receipts (Charts 7 and 8). Concerning the debt to potential GDP ratio, by contrast, the rise in inflation would have led to a decrease of 8.9 p.p. at the end of 2002, in spite of the increases in the deficits in the period under consideration (Chart 9). This result stems, essentially, from the nominal potential GDP growth effect and is enhanced by the increase in the primary balance. The deficit-debt adjustments as a percentage of potential GDP would have not changed significantly. It is worth noting that, contrary to the outcome for the deficit, the debt ratio would be substantially influenced by the assumption on the adjustment of nominal potential GDP (see footnote 12).

Chart 8
OBSERVED AND SIMULATED CYCLICALLY ADJUSTED GENERAL GOVERNMENT BALANCES

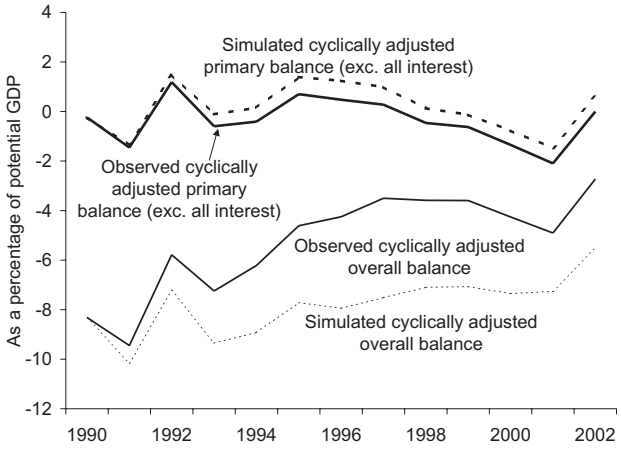
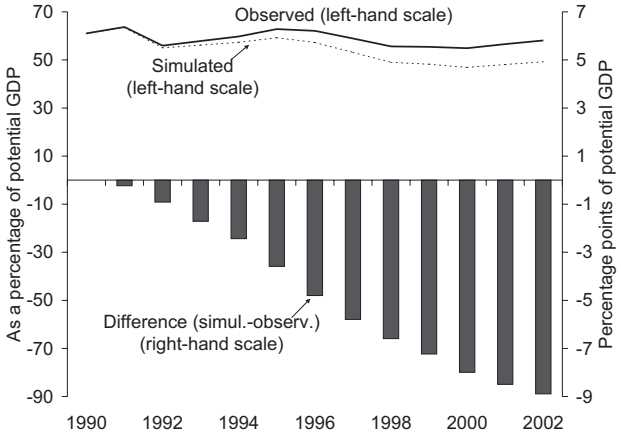


Chart 9
OBSERVED AND SIMULATED GENERAL GOVERNMENT GROSS DEBT



4. OTHER SIMULATIONS: COMPENSATION OF EMPLOYEES AND PENSIONS EXCLUDING SOME DISCRETIONARY MEASURES

In the previous sections it was considered that the disinflation effects on the expenditure side would mainly appear through interest expenditure. Implicitly it was assumed that the other components would be somehow indexed to inflation and, as such, its ratio to GDP would not change. However, during the period under analysis, primary current expenditure increased significantly as a percentage of GDP, in particular compensa-

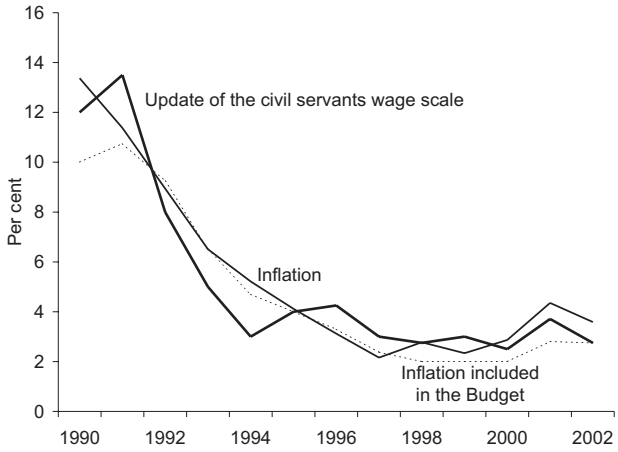
tion of employees and pensions. As such, it is important to understand if this expansion was somehow related to the disinflation process, as these two specific items are annually influenced by discretionary updates, or was the result of policy measures and/or structural factors. The following subsections analyse separately these two budgetary items.

4.1. Compensation of employees

Regarding compensation of employees, and having in mind that, as mentioned in section 3, the inflation estimates included in the Budgets in the period 1990-2002 were broadly in line with the observed inflation, the updates of the civil servants wage scale anticipated well the disinflation process (Chart 10). However, in spite of this evolution, compensation of employees increased around 3.6 p.p. of GDP between 1990 and 2002, showing almost always considerably high growth rates. Part of this behaviour (around 1.6 p.p. of GDP) was explained by the increase in social security contributions that are a liability of the general government as an employer[13]. The rest stemmed mainly from the evolution of wages, that recorded in this period growth rates always well above the update of the wage scale. Chart 11 shows the decomposition of the growth rate of the wage bill in four explanatory factors: the update of the wage scale, the wage "drift", the number of civil servants and a residual. The wage "drift" corresponds to the increase in wages due to normal promotions and the rise of the average wage resulting from the renewal of the stock of civil servants, and it was assumed to be constant at 2.0 per cent in the period under consideration. The wages residual represents essentially the effect of extraordinary revisions of careers. In the period 1990-2002 it was recorded, on the one hand, a strong rise in the number of civil servants, in particular at the beginning of the decade and after 1997. On the other hand, the residual effect was also very significant from 1990 to 1992, as a consequence of the introduction of the New Civil Servants Pay System, and between 1997 and 2002, due to additional revisions in some specific careers. As such, it can be assumed that part of the leeway resulting from disinflation was used by the authorities to increase the number of general government employees and to improve most civil servants careers.

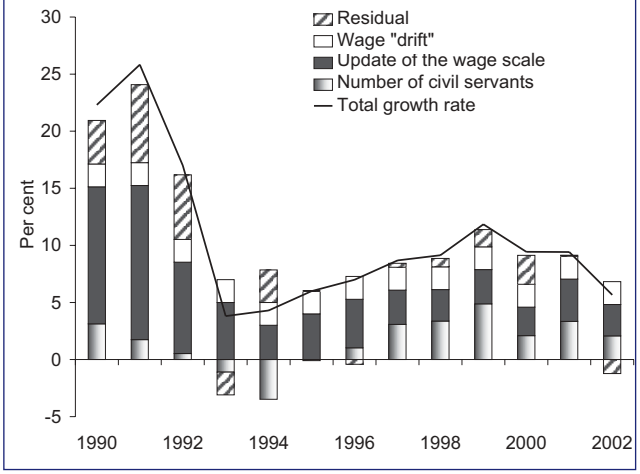
In this context, it is interesting to evaluate the impact of these policy measures on the general government deficit. For that end it was performed

Chart 10
OBSERVED AND BUDGETED INFLATION AND THE UPDATE OF THE CIVIL SERVANTS WAGE SCALE



Note: The inflation included in the Budget is measured by the private consumption deflator while the observed inflation is measured by the consumer price index.

Chart 11
DECOMPOSITION OF THE CIVIL SERVANTS WAGE BILL GROWTH RATE



(13) The part of social security contributions for which the State is responsible as an employer is determined in a way to guarantee the financial balance of *Caixa Geral de Aposentações*, entity managing the civil servants pension system. Therefore, the increase in this component of compensation of employees in the last few years is associated with the rise of expenditure with pensions of the former civil servants.

Table 3

RESULTS OF THE COMPENSATION OF EMPLOYEES SIMULATION

Elimination of the "residual" component of wages + unchanged number of civil servants

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Cum. 1990 /2002
Differences vis-à-vis the baseline (p.p.)														
Annual growth rates (p.p.)														
Wages	0.0	-10.1	-6.8	3.3	0.8	0.1	-0.7	-3.6	-4.3	-6.8	-4.9	-3.6	-0.9	
Compensation of employees	0.0	-8.7	-5.6	3.2	0.6	0.2	-0.5	-2.8	-3.3	-5.3	-3.4	-3.0	-0.3	
Pensions (civil servants system)	0.0	-0.8	-1.8	-1.8	-2.6	-1.6	-1.2	-1.1	-0.9	-0.9	-1.0	-1.0	-1.3	
Changes as a ratio to potential GDP (p.p.)[a]														
Compensation of employees	0.0	-0.9	-0.7	0.4	0.1	0.0	-0.1	-0.3	-0.4	-0.7	-0.5	-0.4	0.0	-3.5
Pensions (civil servants system)	0.0	0.0	0.0	0.0	- 0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.4
Personal income tax	0.0	-0.2	-0.1	0.1	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	-0.6
Social security contributions	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	- 0.1	0.0	0.0	0.0	-0.3
Interest expenditure	0.0	0.0	-0.1	-0.2	-0.1	-0.1	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.9
Cyclically adjusted overall balance	0.0	0.7	0.6	-0.1	0.0	0.1	0.1	0.3	0.4	0.7	0.6	0.4	0.2	3.9

Note:
(a) Annual changes taking into account the cumulative effects until the end of the previous year.

a simulation assuming that from 1990 onwards the number of civil servants had been kept unchanged and the extraordinary revisions of carriers had not taken place[14]. In addition to the direct effect on wages, and to ensure the consistency of the exercise, some other changes in budgetary items were also considered. On the receipt side, personal income tax receipts and social security contributions were adjusted due to the decrease in the public sector wage bill. Concerning the adjustment in social security contributions, it is worth noting that only social contributions paid by the employees were changed. Indeed, the social contributions paid by the employers should have also recorded a decrease but since this one would not have an effect on the deficit (by being recorded on both the receipt and the expenditure sides) it was not included in the analysis. On the expenditure side, it was made an adjustment on the expenditure with pensions of the former civil servants. As the reference wage for the calculation of the initial pension corresponded to the last wage earned by the civil servants, the elimination of the extraordinary revisions of carriers and the resulting reduction in wages would be reflected in the amount of pensions of the new pensioners in the years under consideration. Finally, interest expenditure was also corrected to take into account the effect of smaller deficits on debt.

The results of this simulation are presented in Table 3. The effect on cyclically adjusted deficit is very significant and amounts to around 3.9 p.p. of potential GDP in 2002, of which 0.9 p.p. would result from the reduction in interest expenditure stemming from smaller deficits[15]. It should be noted that the policy currently followed by the Portuguese Government is much more demanding than the assumptions underlying this simulation. Indeed, the annual update of the civil servants wages was lower than inflation in 2003 and the number of civil servants is projected to decline in the next years.

It can be argued, however, that the increases in civil servants wages tend to influence the rises of wages of the private sector employees. Thus, a lower growth of civil servants wages assuming that the extraordinary revisions of careers had not taken place would have some effect on the wages of the private sector. The decomposition of the growth rate of the private sector wage bill in employment, productivity and wage per employee shows that, contrary to what happened in the public sector, the wage per employee was not always systematically above observed inflation in the 1990-2002 period (Charts 12 and 13). Indeed, this

(14) The annual updates of the wage scale in line with inflation would have kept unchanged the purchasing power of the civil servants wages. The analysis of the performance of some key areas of general government, like education and health, does not allow confirming the existence of significant productivity gains during the period considered in this study.

(15) The results presented in this section are a percentage of the baseline potential GDP.

Chart 12
DECOMPOSITION OF THE PRIVATE SECTOR WAGE BILL GROWTH RATE

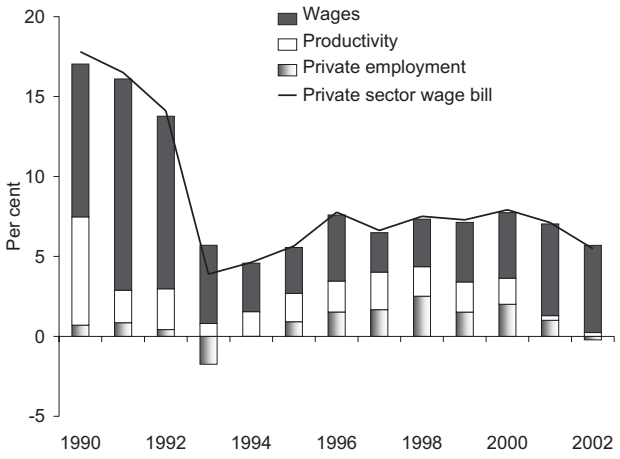


Chart 13
INFLATION AND PRIVATE SECTOR WAGES

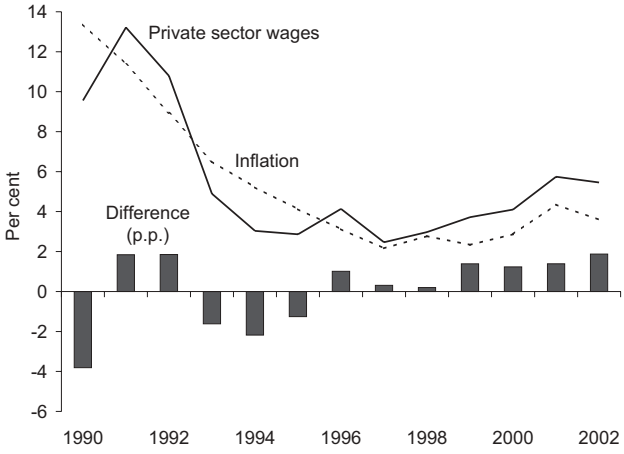
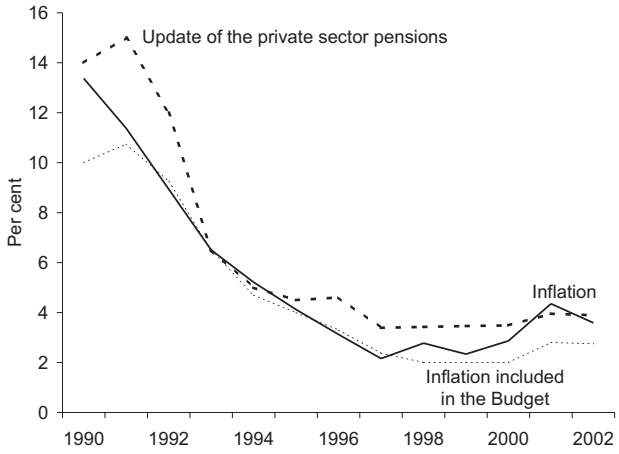


Chart 14
OBSERVED AND BUDGETED INFLATION AND THE UPDATE OF THE PRIVATE SECTOR PENSIONS



Note: The inflation included in the Budget is measured by the private consumption deflator while the observed inflation is measured by the consumer price index.

happened only from 1996 onwards, since in the previous period it appears to exist some compensation between the rise of wages above inflation in 1991 and 1992 and the reverse situation in the period 1993-1996. If part of the difference between the wage per worker and inflation from 1996 onwards was eliminated, the impact on the general government deficit, mainly through a reduction of personal income tax receipts and social security contributions, would have been relatively minor, not changing significantly the former conclusions.

4.2. Pensions

In Portugal there are two main social security systems comprising the private sector workers (general system) and public employees. The pensions paid by the civil servants system will not be analysed in this subsection since they are annually adjusted in line with the update of the wage scale, and the latter, as mentioned in the last subsection, has followed inflation quite closely. In addition, they were not subject to significant discretionary measures with an impact in this period. Regarding the general system pensions the same has not happened. In fact, in the 1990-2002 period, the general system pensions were updated above inflation in most years under consideration, contributing to the strong increase in social payments as a percentage of GDP (1.3 p.p. of GDP) (Chart 14). However, this was not the only factor explaining the evolution of these pensions. In Charts 15-A to 15-C it is shown that the growth rate of old-age, disability and survival pensions was strongly influenced by the rise in the number of pensioners, due to the ageing of population, and by the magnitude of the composition effect, which comprises, essentially, the hike in average pensions, including the effect of discretionary measures, like, for example, the introduction of the 14th month in the payment of pensions in 1990. Thus, for the general system, the leeway originated by the disinflation process was not replaced by very significant discretionary mea-

Chart 15A

DECOMPOSITION OF THE GROWTH RATE OF EXPENDITURE ON OLD-AGE PENSIONS

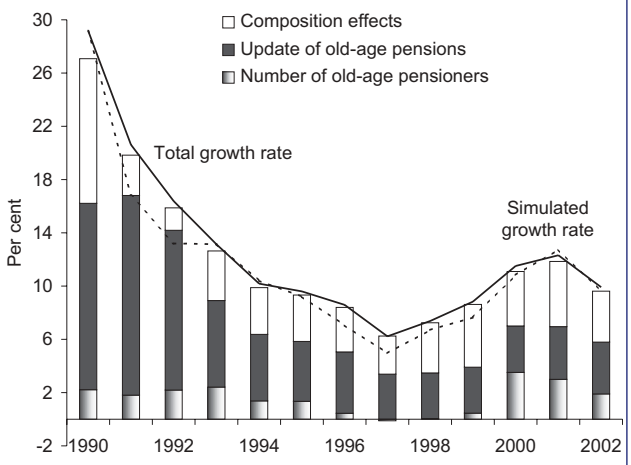


Chart 15B

DECOMPOSITION OF THE GROWTH RATE OF EXPENDITURE ON DISABILITY PENSIONS

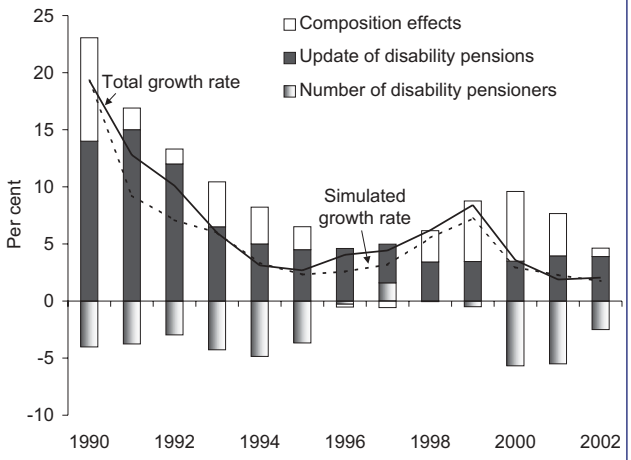
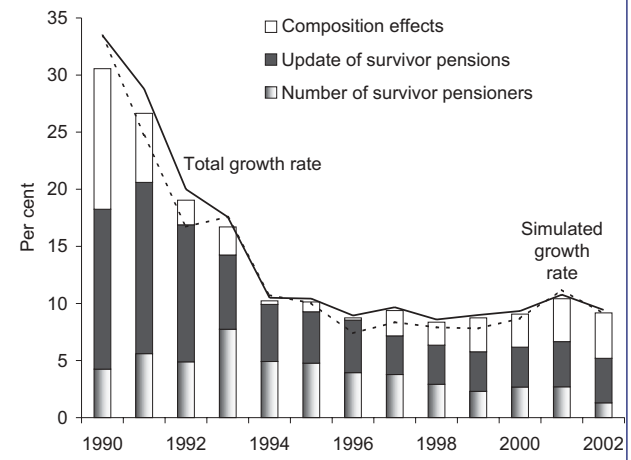


Chart 15C

DECOMPOSITION OF THE GROWTH RATE OF EXPENDITURE ON SURVIVOR PENSIONS



sures, as the evolution of pension expenditure stemmed mostly from structural factors.

The simulation included in this subsection attempts to quantify the impact of the update of the general system pensions above inflation. For that end, it is assumed that the pensions would have been updated in line with inflation. The personal income tax receipts were also modified accordingly. As a result of these changes, the cyclically adjusted deficit would have been 0.7 p.p. of potential GDP below the baseline figure for 2002 (Table 4).

Table 5 presents the total results for the simulations included in this section: compensation of employees and pensions. According to the results, if the leeway originated by disinflation had not been used by authorities to take discretionary measures of an expansionary nature, in particular the increase in the number of civil servants, the implementation of the New Civil Servants Pay System and the additional revisions in several specific careers, the cyclically adjusted deficit would have improved by around 4.6 p.p. of potential GDP in 2002, of which 1.1 p.p. would stem from a reduction in interest expenditure resulting from lower deficits. The debt as a percentage of potential GDP would have been 24.2 p.p. below the baseline figure of 2002. It is worth noting that these results are based on cyclically adjusted balances and, as such, do not take into account the effects of macroeconomic scenario changes on the cyclical component of fiscal balances, in particular through disposable income and private consumption.

5. CONCLUSIONS

Portugal experienced a disinflation process that reduced the growth of prices to figures very close to the EU average in the period preceding the outset of the third phase of EMU.

From 1990 to 1998 disinflation did not have a major impact on general government revenue. Indeed, in the framework of the system of income taxation arisen from the 1989 reform inflation does not lead to a sizeable change neither of the real value of tax receipts nor of the magnitude of the fiscal drag. On the one hand, because most tax receipts concerning incomes received in one year are collected in the same year. On the other hand, because on average the annual discretionary update

Table 4

RESULTS OF THE PENSIONS SIMULATION

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Cum. 1990 /2002
Differences vis-à-vis baseline														
Annual rates (p.p.)														
Update of the general system pensions	0.0	-3.6	-3.1	0.0	0.2	-0.4	-1.5	-1.2	-0.7	-1.1	-0.6	0.4	-0.3	
Growth of expenditure on pensions	0.0	-3.8	-3.2	0.0	0.2	-0.4	-1.5	-1.3	-0.7	-1.2	-0.7	0.4	-0.3	
Changes as a ratio to potential GDP (p.p.)[a]														
Expenditure on pensions	0.0	-0.2	-0.2	0.0	0.0	0.0	-0.1	-0.1	0.0	-0.1	-0.1	0.0	0.0	-0.7
Personal income tax	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
Interest expenditure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
Cyclically adjusted overall balance	0.0	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.7

Note:
(a) Annual changes taking into account the cumulative effects until the end of the previous year.

Table 5

TOTAL RESULTS

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Cum. 1990 /2002
Total impact on the cyclically adjusted overall balance (p.p. of potential GDP):	0.0	0.9	0.8	-0.1	0.0	0.2	0.2	0.3	0.4	0.8	0.6	0.4	0.2	4.6
Compensation of employees simulation	0.0	0.7	0.6	-0.1	0.0	0.1	0.1	0.3	0.4	0.7	0.6	0.4	0.2	3.9
Pensions simulation	0.0	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.7
Total impact on the debt (p.p. of potential GDP)	0.0	-0.9	-1.5	-1.4	-1.2	-1.5	-1.6	-1.8	-2.0	-2.7	-3.2	-3.2	-3.2	-24.2

of the personal income tax parameters is not far from full a generalised, though imperfect, indexation.

On the contrary, in the same period the effect of disinflation on general government interest expenditure was a major deficit reducing factor. Indeed, the composition of public debt at the beginning of the nineties (mostly short term instruments and medium and long term floating-rate bonds denominated in domestic currency) allowed the decrease with a very short lag of the part of interest payments that aims at compensating the debt holders for the erosion of the real value of public debt caused by inflation. In this context, it should be expected that a decline in inflation would lead to a more than proportional reduction in interest payments, decreasing its ratio to GDP, what actually did happen. Assuming for the sake of simplification that inflation throughout the period would have remained at the 1990 level, though keeping the implicit interest rate of public debt deflated by the CPI at the observed levels, this effect was estimated to be around 2.8 p.p. of potential GDP in 2002. Further, the credibility associated with nominal convergence determined in Portugal a sharp reduction of the risk premium included in interest rates, with an impact on the implicit interest rate on public debt deflated by the CPI. Between 1993 and 1998, the cumulative effect on the general government deficit resulting from the reduction of the interest rate differential relatively to Germany may be estimated at around 2.6 p.p. of GDP.

The sizeable room for manoeuvre allowed by the decrease in interest expenditures as a ratio to GDP was, to a large extent, offset by the expansion of primary current expenditure resulting from discretionary policy measures, namely in the area of personnel expenditure, and structural factors

stemming from the working of the pension systems. Simply keeping the number of civil servants unchanged and avoiding extraordinary revisions in the wages of specific careers and pension updates exceeding expected inflation would have led to a reduction of the cyclically adjusted deficit by 4.6 p.p. of potential GDP in 2002. As such, it is clear that following policies in some aspects less demanding than the current ones, Portugal would be now in a fiscal position close to balance or in surplus.

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