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# RIVISTA DI POLITICA ECONOMICA

## • DEBT, DEFICIT AND ECONOMIC PERFORMANCE

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## International Empirical Evidence

Paul R. Masson - John F. Helliwell, William Vickrey Margherita Carlucci - Martino Lo Cascio - Luigi Paganetto - Steve Ambler Jagdish Handa - David F. Burgess

The Experience of Some Countries Mario Baldassarri - M. Gabriella Briotti - Yannis Stournaras Larry Sjaastad



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<sup>(\*)</sup> The essays included in this collection were presented at the International Economic Conference held in Montreal at the McGill Economics Centre of the McGill University, on December 6-8, 1989. The Centre was founded on the basis of a grant to McGill University from George S. Petty, chairman of Repap Enterprises.

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## Public Sector Debt and Deficits in Greece: The Experience of the 1980s and Future Prospects

Yannis A. Stournaras Bank of Greece and University of Athens (\*)

### 1. - Introduction

Over the last ten years the ratio of Greek public debt to GDP has increased by more than three times. At the end of 1989 it will be very close to unity, which is one of the highest in Europe and among the OECD countries. At the end of the 1970's it was among the lowest in Europe, which implies a record rate of increase over the period in question. In addition, this ratio seems now to have been stabilized in most OECD countries while it keeps on rising rapidly in Greece.

The present paper attempts to answer certain questions related to the growing public debt. In particular, it examines: a) the dynamics of public debt accumulation and explains the principal causes behind it; b) certain of the implications of public sector deficits for the balance of resources in the economy and, in particular, the relationship between public sector and current account deficits in Greece, and c) whether the process of public debt accumulation should now stop and how this can be achieved.

Advise: the numbers in square brackets refer to the Bigliography in the appendix.

Mario Baldassarri - M. Gabriella Briotti

<sup>(\*)</sup> The present paper is part of a project on Public Sector Deficits in Greece, run by the author and Dr. V. Manessiotis (Research Department, Bank of Greece). The author wishes to thank Dr. Manessiotis as well as Mrs. D. Argirou and Mr. P. Valadimas for their valuable help. Views expressed in this paper are strictly personal and do not necessarily reflect the Bank of Greece's views.

## 2. - Definitions

There are serious differences in the definition of public sector debt among the OECD countries. These differences concern both the notions of "debt" and "public sector". In most official publications regarding public debt, the public sector is the «general government» which consists of the central governement, the local authorities and non-private social security and other organizations. Others add certain public corporations while in many cases some special credit institutions are also included in the definition. Similarly, certain publications refer to gross debt, others to net debt (i.e. gross debt net of public sector liquid assets), while in some cases more assets are netted out.

In the present paper, the definition of public sector includes the central government, the local authorities, the non-private social security and other organizations as well as the non-financial public corporations. Also, by «debt» is meant net debt, i.e. gross debt net of public sector deposits with banks and net of Treasury bills owned by non-private social security and other organizations as well as by public corporations. Finally, military debt is excluded from the definition.

The exclusion of State financial institutions from the conventional definition of the public sector creates some problems. This is particularly the case in Greece where the State is the majority shareholder of most of the domestic commercial banks while two special credit institutions belong entirely to it. As it is the case, almost all the domestic liabilities of public corporations and most of the domestic liabilities of the central government itself are assets of banks and credit institutions, partially or wholly owned by the State. This implies: a) that the size of the public debt may be very sensitive to the definition of the public sector, and b) that seignorage revenue, which is defined as the change in the monetary base in real terms, may accrue to the public sector, as it is conventionally defined here, in an indirect and not easily detectable way.

A particular criticism of the conventional definitions of public debts and deficits is the asymmetry in the treatment between the private and the public sectors as far as the presentation of their accounts are concerned (Eisner [9]). It is argued that instead of public debt, the concept of public net worth should be used while the annual public deficits should be split between consumption and investment deficits. Although this criticism is correct, the data needed to evaluate public sector assets makes it an impossible task. However, the ratio between consumption and investment deficits has serious implications for the sustainability of an increasing public debt, the transfer of burden on future generations and the balance of resources in the economy; also, it provides a proxy for the evolution of public sector's net worth (Odling-Smee and Riley [11]). Therefore it should be a necessary component in any study of public debts and deficits.

## 3. - The Dynamics of Public Debt Accumulation in Greece

The evolution of public sector debt in Greece relative to GDP is presented in Graph 1, while Graph 2 compares the evolution of public sector debt to the evolution of the country's total net external debt. The first question to be asked is what caused the rapid increase in the ratio of public sector debt to GDP over the last ten years.

The change in the public sector debt D, between two time periods (years) t and t-1, is given by the government's budget constraint:

(1) 
$$D_t - D_{t-1} = i_t D_{t-1} + \Pi_t + a_t D_{t-1} - \Delta B$$

where  $i_t$  is the average nominal interest rate on public sector debt,  $\Pi_t$  is the primary deficit (PSBR net of interest payments),  $a_t$  is the revaluation effect on existing debt (in Greece this is entirely due to the depreciation of the effective exchange rate of the drachma since public debt is not sold, at least up to now, below or above its redemption value) and  $\Delta B_t$  is the *direct* financing of the budget from the Central Bank.

A parenthesis is due here. According to the Treasury's definition, the central government debt includes, among other liabilites, longterm loans made available to the government by the Bank of Greece as well as treasury bills sold to the Bank of Greece. These long-term loans and treasury bills create debt service obligations for the central government. The implication is that  $\Delta B$  in equation(1) is not the



GRAPH. 2



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Net public sector debt.
 Net general government debt.
 Net public corporation's debt.

Source: BANK OF GREECE.

change in the monetary base,  $\Delta M$ , but part of it ,determined by changes in two government accounts with the Bank (the working of these accounts is explained immediately below). Another related point is the allocation of seignorage revenue. Although the Bank of Greece does not pay dividends to the Treasury, it subsidizes the activities of various commercial banks and special credit institutions partly or wholly owned by the State, whose assets and liabilities are not included in the definition of public debt.

The direct financing of the budget from the Bank of Greece is the change,  $\Delta B$ , in the outstanding balance of the government accounts



No 200 and No 203 with the Bank. When these accounts show a negative balance, this cannot exceed a certain limit (equal to 10% of the annual expenditure of the ordinary and investment State budget and the value of the existing oil stocks in state refineries) set by law. It is this (constrained) change in the balances of these accounts which constitutes direct financing of the PSBR by the Bank of Greece and is not considered by the Treasury as additional debt. It should be noted that the effective limit constraining direct financing is lower than the one set by the law, because, a (small) interest rate is charged on negative balances.

#### Public S

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Dividing both sides of equation (1) by nominal GDP,  $Y_{i}$ , and manipulating we obtain:

(2) 
$$d_t - d_{t-1} = \pi_t + (d_{t-1}/1 + g_t)(i_t + a_t - g_t) - b_t$$

where  $d_t$  is the public sector debt to GDP ratio in year t,  $\pi_t$  is the primary public sector deficit as a percent of GDP in year t,  $g_t$  is the nominal GDP growth rate between years t and t - 1 and  $b_t$  is  $\Delta B_t/Y_t$ . Alternatively we can approximate the nominal growth rate  $g_t$  as the sum of the change in GDP deflator  $p_t$  and the real GDP growth rate  $g^*$  and rewrite equation (2) as:

(3) 
$$d_t - d_{t-1} = \pi_t + (d_{t-1}/1 + g_t)(i_t^* - g_t^*) - b_t$$

where  $i_i^*$  is defined as the real effective average interest rate on public sector debt. (It is equal to the average real interest rate, i - p, plus the revaluation effect, a).

Applying equation (3) to explain the evolution of central government debt relative to GDP (for which data on interest payments are more reliable in comparison to those regarding general government or total public sector debt), we obtain Table 1. The following conclusions can be drawn:

a) equation (3) predicts the evolution of the central government debt to GDP ratio quite well for the whole period 1979-1988 (the sum of discrepancies in column 5 is almost zero), although the year to year discrepancies appear to be significant for a number of years. This is mainly due to: 1) changing accounting practices regarding the treatment of capitalized interest payments on central government debt sold to the Bank of Greece; 2) the use of the trade weighted — rather than debt weighted — effective exchange rate to estimate the revaluation effects owing to the depreciation of the drachma and 3) the exclusion of military debt;

b) the cause of the increase in the debt to GDP ratio seems to be the persistent and high primary deficit to GDP ratios, which are the largest in the OECD area for the period in question, and much higher than they were in Greece in the period 1975-1979 (Table 2). Column 2 in Table 1 gives the central government primary deficit to GDP ratio

## Public Sector Debt and Deficits in Greece etc.

		ТН	E EVOLUTION	OF C	ENTRAL GOVE (percentage )	ERNMEN points)	IT, DE	BT TC	GDI	RATIC				ABLE 1
					161-			I	nemora	undum ite	ms			
	()	(2)	(3)	(4)	(2) + (3) - (4) - (1)	(9)	(2)	(8)	6)	(10)	(11)	(12)	(13)	(14)
	$d_i - \dot{d}_{i-1}$	π,	$\frac{(i_{t}^{*}-g_{t}^{*})Xd_{t-1}}{1+g_{t}}$	p,	Discrepancy	$i_i - \rho_i$	a <sub>s</sub>	12	8	AM/Y,	*	π <sub>1</sub>	н <mark>и</mark> –	$\pi_t - \pi_t$
980	0.1	4.8	- 1.4	25	+ 0.8	- 7.0	2.6	4.4	1.8	3.9	- 4.2	9.0 a	4.2	0.3
1981	5.0	9.4 8 L	- 1.1 - 3.4	0.6	+2.6 -1.5	- 6.3 - 14.8	2.1	- 4.9	0.4	4.7	-10.4	7.8	7.6	- 0.2
983	5.2	6.2	-1.3	0.0	-0.3	- 7.7	4.2	- 3.5	0.4	1.8	4.4	4.7	5.1	0.4
984	8.3	8.2	-2.3	- 1-5	-0.9	- 8.5	3.5	- 5.0	2.0	4 80. C	- 4.3	0.0	2.0	7.0
1985	8.4	9.1	-1.0	2.2	- 2.5	1 0.1	0.0 1	7.0 -	C-7	0.1		0.9		-0.2
1986	1.0	5.1	0.4	5.0	+ 3.1 + 0.7	+ ( 	0.4 0.7	3.1	0.1	3.9	3.3	4.6	3.6	- 1.0
198/	7.5	7.5	-1.2	0.7	- 1.9	- 0.4	2.5	2.5	4.2	0.4	2.3	7.3	5.5	- 1.8
rotal 1979-1988	44.6	63.3	9.6 -	7.8	+ 0.1							_		
Average 1980-1988	5,0	7.0	- 1.1	0.8	+ 0.01	- 6.6	3.9	-2.7	1.3	3.3	-3.0	6.7	6.6	0.1
Memor. tem:						ŕ								
Average 1975-1979	1.0	3.3		2								1.5	1.6	0.2

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.s

Symbols

£

OECD [14].

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on a cash basis, column 12 the corresponding ratio for the general government (which includes the central government, the local authorities and non-private organizations such as pension funds) while column 13 gives the corresponding ratio for the total public sector (which includes the general government and public corporations). Column 14 gives the primary deficit to GDP ratio for public corporations only. It may be noted that the largest deficits occured in 1981, 1984, 1985, which were election years, while for 1989, which was also an election year, the primary central government deficit to GDP ratio was 9%. Hence there is a clear «political» cycle as far as the fiscal stance is concerned. The causes of these primary deficits will be analyzed subsequently;

c) the contribution to the rising debt to GDP ratio of the average, effective real interest rate,  $i^*$ , net of the real GDP growth rate,  $g^*$ , was negative (column 3 in Table 1). This was rather due to strongly negative real interest rates (columns 6 and 8) than to high real growth rates (column 9). The exception was 1988 where an exceptionally high real growth rate (4.2%) outweighted a positive effective real interest rate (2.5%). These facts give cause for serious concern, since average real effective interest rates are rising fast in recent years along with primary deficits. In general, the average, real effective interest rate appears to be very close to the marginal real interest rate,  $r^*$  such as that on 3-month, Treasury bills (column 11 in Table 1);

d) the average contribution of direct financing from the Bank of Greece (column 4 in Table 1) was rather small (less than one percentage point per year). By contrast, the average change in the monetary base relative to GDP (column 10), was much larger.

## 4. - The Main Causes

of the Increase of Primary Deficits

From Table 1 follows that the high average public sector primary deficit for the period 1980-1988 (column 13) as well as the large increase between the average 1980-1988 deficit and the corresponding one for the period 1975-1979 (column 13, last row) is largely due to the general government (column 12). This conclusion is based on the

TABLE 2

GENERAL GOVERNMENT PRIMARY SURPLUS

					(% of	GDP)	1	-						
				1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	
				-3.9	8 8 0	-1.9	-4.7	- 8.0	- 9.6 - 0.6	-6.0	-4.6 0.3	-7.3	- 9,0 1,4	
ies			· · · ·	-1.4	-2.3	-2.2	-1.6	-1.0	-0.7	-0.3	0.1	0.5	1.1 - 1.5	
				- 4.0 - 8.4	- 6.2 - 8.3	-3.0	-3.2	-0.6	0.8	-3.8	2.5	2.8	3.4	
	•			† 	0 	2	Ne	public (% of	sector d	lebt				
				2.05	38.8	5 44 3	52.4	64 1	76.4	78.4	83.6	90.5	100.0	
•	•			2112	22.8	25.8	28.4	29.7	31.4	33.1	33.6	32.8	31.8	
lae -	•			26.3	29.0	32.3	35.4	37.5	39.7	41.2	42.1	42.0	41.4	
20				53.6	57.8	63.4	68.7	74.3	81.3	86.2	90%	92.4	94.6	
				69.3	83.6	92.6	103.7	108.8	112.5	116.8	121.8	124.5	123.9	
ebt)				78.0	83.5	92.3	104.6	112.8	118,1	134.3	137.2	137.6	132.2	
				7.8	11.5	14.1	18.1	22.6	27.5	29.8	31.0	31.1	30.9	
		ġ,		۲.			Mem	orandur (% of	a item: DP)	PSBR				
1976	1771	1978	6261											
2.6	4.1	5.0	5.4	8.3	14.8	12.6	14.0	15.3	17.8	14.1	13.4	16.3	18.1	
	tes	tes tes 1976 1977 2.6 4.1	tics tics 1976 1977 1978 2.6 4.1 5.0	tics tics tics 1976 1977 1978 1979 2.6 4.1 5.0 5.4	1980         1980           1081         -3.9           1082         -3.9           1083         -3.9           1084         -1.2           1095         -2.4           1071         1978           1976         1977           1976         1977           1976         1977           1978         1978           2.6         3.3           2.6         4.1           5.0         5.4	1980         1980         1981           1980         1980         1981           1980         1980         1981           1980         1980         1981           1980         1981         -2.3           1980         1981         -2.3           1980         1981         -2.3           1980         1981         -2.3           1980         1981         -2.3           1980         1981         -2.3           1980         1971         1978           1976         1977         1978           1976         1977         1978           1978         1979           1978         1979           1978         1979           1978         1978	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	(700, 0.00, 1) $(700, 0.00, 1)$ $(700, 0.00, 1)$ 1980     1981     1982     1983     1984       1980     1981     1982     1983     1984       1080     1914     1091     1091     1081     1983       1081     1092     1981     1982     1983     1984       1081     1091     1091     1091     100     100       1081     1092     38.8     44.3     55.4     64.1       1081     30.2     38.8     44.3     55.4     64.1       1082     57.8     53.5     53.5     37.7     108.8       1091     30.2     38.8     44.3     52.4     64.1       108.8     57.8     63.4     68.7     73.3       1092     103.7     108.8     23.5     35.4       1976     1978     11.5     14.1     18.1     22.6       1976     1978     1978     11.5     14.0     15.3       1976     1978     1979     1974     14.0     15.3	Control         Control         Control         Control         1980         1981         1982         1984         1985         1984         1985         1021         001	Condition         Condition         1980         1981         1983         1984         1985         1986         10.2         20.3         10.3	Contract     1980     1981     1982     1983     1984     1985     1986     1987       ies $-3.9$ $-8.8$ $-7.8$ $-4.7$ $-8.0$ $-9.6$ $-4.6$ $-1.2$ $-0.9$ $-1.9$ $-1.9$ $-1.9$ $-0.6$ $-4.6$ $-1.2$ $-0.9$ $-1.9$ $-1.9$ $-0.6$ $-4.6$ $-1.2$ $-0.9$ $-1.9$ $-1.9$ $-0.6$ $-4.6$ $-1.2$ $-2.9$ $-2.1$ $-2.9$ $-2.1$ $-3.0$ $-1.40$ $-6.1$ $-2.3$ $-3.7$ $-4.1$ $-5.1$ $-3.0$ $-9.6$ $-6.1$ $-2.3$ $-3.2$ $-0.6$ $-4.3$ $-2.1$ $-9.6$ $-6.2$ $-3.0$ $-3.2$ $-0.6$ $-2.2$ $-8.4$ $-3.3$ $-7.7$ $-5.6$ $-2.9$ $-3.0$ $-2.4$ $-3.5$ $-5.3$ $-4.2$ $-4.1$ $-5.1$ $-2.1$ $-2.9$ $-4.2$ $-4.1$ $-5.1$ $-3.0$ $-2.1$ $-2.9$ $-4.2$ $-4.1$ $76.4$ $78.4$ $83.6$ $-2.5$ $22.8$ $25.4$ $64.1$ $76.4$ $72.4$ <td><math display="block">\begin{array}{ c c c c c c c c c c c c c c c c c c c</math></td> <td><math display="block">\begin{array}{ c c c c c c c c c c c c c c c c c c c</math></td>	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$

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following facts: *a)* the average primary deficit to GDP ratio for public corporations remained close to zero for both periods and has actually turned into a small surplus during 1980-1988 (column 14); and *b*) the average net general government transfer to public corporations relative to GDP (not shown in Table 1) has increased approximately by 0.5% of GDP between 1980-1988 and 1975-1979, reflecting an increased compensation for social goals pursued by public corporations.

The analysis of the general government primary deficit to GDP ratio is given in Table 3. Before we turn to the conclusions we owe an explanatory note: the observed differences in the size of the general government primary deficits between Tables 2 and 3 are due to differences in the methods employed: Table 2 is on a cash basis (Bank of Greece data) while Table 3 is on a national accounts basis. The two bases are not easily reconciled, while an analysis of the primary deficits can only be based on national accounts, since detailed cash-flow data are not available.

From Table 3 follows that the large increase in the general government primary deficits between 1975-1979 and 1980-1988 is mainly due to the rapid development of the welfare state without a parallel increase in government revenue (taxes and social security contributions; the reasons explaining the hysteresis in revenue will be analyzed in the last section). This is reflected in the large increase of current government expenditure on social security and health (last row in Table 3) which is the main cause of the increase in the transfers to households (mainly pensions and various benefits). It is also one of the causes of the increase in public consumption (the item related to health; the other cause of the increase in public consumption is the increase in spending on administration, defence and education, not shown in Table 3, which partly reflects increased employment in the public sector).

The dramatic rise in social security expenditure is a combination of a rise in the average pension (minimum pensions in particular rose in real terms by more than 6% annually between 1981 and 1988) and a rise in number of people covered by social security without having ever paid any contributions. These are mainly farmers and immigrants from Eastern Europe where they had fled during the 1945-1949 civil war. However, it should be noted that part of the increase in social

#### ANALYSIS OF THE GENERAL GOVERNMENT PRIMARY DEFICIT NATIONAL ACCOUNTS BASIS

	1975-1979 (Average % of GDP)	1980-1988 (Average % of GDP)
Public consumption	15.7	18.9
Transfers to Households	8.3	13.2
Other transfers	2.8	2.7
Public investment (gen. gov.)	3.1	3.4
Total expenditure	29.9	38.2
General government receipts	29.0	33.1
Primary deficit memorandum item:	0.9	5.1
Current expenditure on Social security and	the second s	
health	12.2	18.9

Source: National Accounts, OF Greece; Oecd [14]; Social Budget, 1988 (Ministry of Health AND Social Security, Athens).

expenditure is also due to concessions to various pressure groups, such as favourable conditions for early retirement, and to a very soft, by international standards, law regarding disability pensions and the granting of benefits to those working under "unhygienic" conditions.

The rapid increase in social expenditure partly reflects a low starting point and a catch-up effect. In 1975, immediately after the fall of the military dictatorship, minimum pensions were barely at subsistence level. Total pensions were equal to 4.8% of GDP, while in France, Germany and Italy, with a roughly similar social security system, the corresponding average ratio was close to 10%. In 1980 the ratio was 5.7% for Greece and 10.8% for the other three countries while in 1985 it was 10.7% and 13.5%.

Against an almost 7 percentage GDP points increase in social expenditure, contributions to pensions funds increased very little. What we have actually observed since 1981 is the transformation of a basically social insurance system into a social welfare system with benefits largely dissociated from contributions.

The increase of the average pension as well as the number of pensioners, which partly reflected welfare policy but, also, concess-

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TABLE 3

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ions to various pressure groups, has important dynamic consequences for pensions funds and general government finances. In 1979, the Greek social security system had a combined financial surplus equal to 1.5% of GDP, among the highest in Europe, while in 1986, it showed a deficit of 1.0%. No other European country has such a deficit (France, Holland, Spain and Finland have much smaller deficits, while the other European countries and the United States have surpluses). The situation looks even worse if the financial balances of pension funds are examined before government transfers and taxes levied on their behalf: On this account the deterioration between 1979 and 1987 is 3.3 points.

Finally, it should be noted that the contributors to pensioners ratio has fallen from 3.2 in 1979 to 2.7 in 1987, an extremely low ratio by international standards, in a period during which there were no adverse demographic factors. According to OECD [12] the Greek population aged 65 and over relative to total Greek population remained constant in the eighties and approximately equal to 0.13, while this ratio is expected to increase considerably up to the year 2030 (the expected ratio for Greece is 0.20, which is equal to the OECD average expected ratio). Given their current financial situation, pension funds will face serious difficulties in tackling the financial problem of a rapidy ageing population (for a detailed analysis, see Tinios [19].

Table 3 also shows that general government gross investment expenditure has increased very little between the two periods in question. Although investment expenditure by public corporations has increased by one percentage GDP point between the two periods (not shown in Table 3), the fact remains that total public sector investment expenditure has increased by approximately 1.3 percentage GDP point, while total net public sector borrowing (PSBR) has increased by approximately 10 percentage GDP points (Table 2). Taking into account that government expenditure on education and health (which, according to a certain view, should be considered as social investment) has increased by less than two percentage GDP points between the periods in question, there is prima facie evidence that the public sector's *net worth* has deteriorated seriously between these two periods.

## 5. • The Relationship Between Public Sector and External Deficits in Greece

The implications of public sector deficits for the balance of resources in an economy is a central theme in macroeconomic policy. Macroeconomic theory offers a rich menu of linkages between public sector deficits and the rest of the economy. As far as the linkages between public sector and external deficits are concerned, we will only refer to two theories, which can be considered as being at the two opposite extremes, noting that intermediate, and rather more plausible, views may be considered as combinations of these two extreme ones. The purpose of the exercise is to examine whether the Greek experience justifies either of them, and hence derive some clues for the future.

The first "extreme" view goes back to Ricardo and has been revived recently by Barro (see, among others, Barro [2]). According to it, changes in budget deficits cause offsetting changes in private savings through anticipations of changes in future taxation. Therefore they have no effect on national savings and, consequently, on the current external account.

The second "extreme" view is the one related to the New Cambridge Group of British economists (Fetherston and Godley [10]) and is derived from UK empirical evidence. According to it, the private sector's (household and corporate sector) net acquisition of financial assets is zero. That is, private disposable income is equal to private consumption and investment expenditure. Therefore, the national income identity implies that a government budget deficit must be matched by an equal current account deficit (and a change in the government budget deficit by an equal change in the current account deficit). It way be noted that this view is consistent with the Mundell-Fleming model under perfect capital mobility and a floating exchange rate.

Table 4 provides the relevant evidence for Greece regarding the evolution of the general government financial balance, the current account balance, private savings, investment etc., all relative to GDP and at a national accounts basis. Separating the period 1970-1979 from the 1980-1988 period, where budget deficits were uniformly

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	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
GDP real growth (%)	8.0	7.1	8.9	7.3	-3.6	6.1	6.4	3.4	6.7	3.7	1.8	0.1	0.4	0.4	2.9	3.4	0.7	0.0	4.3
1) Current account surplus (CAS)	-3.0	- 1.5	-1.2	-3.7	-3.2	-4.1	-2.5	-2.6	-2.2	-3.0	+0.5	-0.3	-4.0	-4.5	-3.5	-7.5	-4.3	-2.1	-0.8
2) General government financial surplus (GGFS)	-0.1	-0.9	-0.3	-1.4	-2.2	+3.4	-2.6	-2.1	-1.7	-2.5	-2.9	- 10.9	-7.6	-8.1	-9.9	- 13.5	-11.1	1.11-	-13.5
<ol> <li>General government fin. surplus on current transactions (GGFSCT)</li> </ol>	4.3	3.7	4.4	4.2	1.9	0.6	2.1	0.8	0.1	0.8	0.0	-6.7	-4.6	-4.6	-5.4	-9.0	-7.4	L.L-	- 10.0
4) Private sector gross savings (PS)	19.0	21.5	24.0	27.0	22.6	23.0	23.4	23.4	24.1	24.4	24.9	27.0	24.8	24.2	25.3	26.5	23.6	23.0	26.0
<ol> <li>National gross savings</li> <li>(NS) = (3) + (4)</li> </ol>	23.3	25.2	28.4	31.2	24.5	23.6	25.5	24.2	24.2	25.2	24.9	20.3	20.2	19.6	19.9	17.5	16.2	15.3	16.0
6) Net household savings (NHS) % of disp. household income	1	·	20.3	23.4	18.3	19.0	19.8	19.9	20.4	21.6	20.6	21.6	19.7	18.8	20.6	21.4	18.0	17.5	19.7
7) Private gross investment includ. public corporations (PI)	22.8	21.8	22.4	27.5	23.4	21.9	22.4	24.7	24.5	26.5	25.9	21.6	18.3	18.7	16.4	17.1	15.3	14.1	15.6
8) Private gross investment exclud.public corporations ( <i>PI-IPC</i> )	20.8	19.8	20.4	25.5	21.4	19.6	20.4	23.0	22.3	24.0	22.5	18.4	15.0	15.2	13.0	13.4	12.3	12.1	13.4
<ol> <li>Gross state investment (GSI) = inv. by general government and public corporat.</li> </ol>	6.7	7.3	8.4	7.1	7.0	6.4	5.6	4.0	4.7	5.4	6.0	7.0	6.0	6.6	7.3	7.8	7.0	5.3	5.1
10) National investment ( <i>NI</i> ) = (8) + (9)	27.5	27.1	28.8	32.6	28.4	26.0	26.0	27.0	27.0	29.4	28.5	25.4	21.0	21.8	20.3	21.2	19.3	17.4	18.5

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TABLE 5a

THE NATIONAL INCOME IDENTITY

	(1)	(2)	(3)	(4)	(5) = (1) + (2) - (3) - (4)
	GGFS	PS	PI	CAS	discrepancy
1970-1979 average, % of GDP	- 1.75	23.24	24.00	- 2.69	0.18
1980-1988 average, % of GDP	- 10.00	25.03	18.08	-2.94	-0.11
changes beween averages, % of GDP	- 8.25	1.79	- 5.92	-0.25	-0.29

Source: NATIONAL ACCOUNTS, OF GREECE; OECD [14].

larger, and taking the average ratios for both periods, we obtain tables 5a, 5b, which are different versions of the same identity.

Table 5*a* is based on a version of the national income identity (see equation (4)) which presents separately the General Government Financial Surplus (GGFS; this includes current and investment expenditure in the expenditure side) from Private Savings (PS) and Private Investment (PI). This presentation is helpful if the objective is to separate the budget deficit from the private sector's savings-investment gap:

(4)

## GGFS + PS - PI = CAS

where CAS is the current account surplus on a national accounts basis ("Net Lending"). Table 5*b* is based on another version of the same identity:

GS - NI = CAS

which gives the CAS as the difference between national gross savings (GS) and Investment (NI).

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	(1)	(2)	(3)	(4) = (1) - (2) - (3)
	GS	NI	CAS	discrepancy
1970-1979 average, % of GDP	25.53	27.90	- 2.69	0.32
1980-1988 average, % of GDP	18.83	21.48	- 2.94	0.29
Changes between averages, % of GDP	-6.70	- 6.42	- 0.25	-0.03

Source: NATIONAL ACCOUNTS, OF GREECE; OECD [14].

Table 5a shows that, although the average general government financial deficit (- GGFS) has increased by 8.3 points between the two periods in question, the current account deficit (-CAS) has barely changed. This implies that the «New Cambridge» propositions is in contrast with the Greek experience if one examines changes in average ratios between long periods as the ones considered here. However, it should be noted that in recent years large changes in budget deficits coincided with large changes in the current account. This was the case in 1985 (sharp deterioration in both accounts) and the following years (1986-1987) where improvements in government financial balances coincided with improvements in the current account. It was also the case in 1989 with a sharp deterioration in both accounts.

On the other hand, Table 5a shows that the average private savings ratio (PS) has increased very little between the two periods, in comparison to the dramatic increase in government dissaving, implying a large fall in the national gross savings ratio. Hence, while the almost constancy of the current account deficit between the periods in question agrees with neo-Ricardian conclusions, the transmission mechanism is in contrast to the one underlying neo-Ricardian theory. In Greece it was private investment (PI), rather than private savings

TABLE 5b

(PS), that adjusted to government dissaving: As it is evident from Table 5a, the fall in private investment was almost six percentage GDP points, while the increase in private savings was less than two points. In fact, the change in private savings was smaller and in investment larger: private corporate savings in Greek national accounts include savings by public corporations and, for symmetry, we have included investment by public corporations in private investment. From available public corporations cash-flow data covering the period 1975-1988, it is estimated that their average gross savings must have increased by more than one percentage GDP point between the 1975-1979 and 1980-1988 periods, while their gross investment has also increased by one point. In addition it should be noted that net household savings relative to household disposable income has shown a remarkable constancy for the 1970-1988 period (Table 4) at a level which is among the highest in OECD countries, (OECD [14]) while, as we will see immediately below, private sector profitability during the 1980-1985 period has fallen, which suggests that savings by private corporations must have been adversely affected in the 1980-1988 period. The high level of household savings in Greece must largely be explained by social factors (e.g. strong bequest and precautionary motives) given that real interest rates were negative until recently. It is also worth noting that the transformation of the social insurance system has not affected significantly the savings ratio.

## 5.1 - Explanations for the Decline in Private Investment

The decline in private fixed capital formation was a common phenomenon in OECD countries following the second oil price shock. In Greece, however, the decline was much larger and more persistent: private investment continued to fall up to 1986, while in OECD as a whole it started picking up in 1983. This calls for explanations based on local factors. However this is beyond the scope of this study and has been covered extensively elsewhere (see, among others, Deleau [6]). We will only refer to some of these explanations which, in our opinion, seem to be the most relevant.

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## 5.1.1 Incomes Policy Combined with Price and Profit Margins Control and an Appreciating Real Exchange Rate

Since 1975, average pay in manufaturing was rising faster than productivity, encouraged by official guidelines, while most OECD countries were restricting pay increases following the first oil price shock. This phenomenon was reinforced after the election of a socialist government in 1981, which provided large increases in minimum wages and made wage indexation its official policy. At the same time, the rather unorthodox and bureaucratic controls on prices, profit margins and house rents as well as an (ex-post) non-accommodating exchange rate policy (the real effective exchange rate - in terms of unit labour costs - appreciated considerably between 1979 and 1985 — see Graph 3) caused a profit squeeze as well as a reduction in housing investment. In fact, the net profit rate in manufacturing was falling almost continuously since 1973 (OECD [13]) and turned negative in 1981. The first sign of recovery occurred in 1984-1985, while the application of the two-year stabilization programme (1986, 1987) caused a large increase in profits and in private investment.

## 5.1.2 Structural Contstraints

The barriers protecting Greek manufacturing prior to Greece's entry into the EEC had led to the development of sectors which were associated with stagnating world demand at the expense of more dynamic ones (Deleau [6]). The removal of these barriers exposed Greek manufacturing to world competition which required rapid adjustment. However, the scarcity of managerial skills and qualified personnel, the inability of most of the Greek firms to absorb technological advances beneficial to the quality of their products or to the cost of their production, bureaucratic impediments combined with the exercise of a rather erratic industrial policy, and a financial system biased against the provision of venture capital, resulted in the failure of Greek manufacturing to adjust to the new, more competitive environment.

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## 5.1.3 Crowding-Out Mechanisms

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The presence of a growing public sector deficit along with the fall in private investment is sometimes used as an argument in favour of the operation of a crowding out mechanism through credit rationing,

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since lending interest rates were fixed by the authorities at low levels (real rates were actually negative) up to 1986.

Although it is not an casy task to support the crowding-out-throughcredit rationing argument for the 1980-1986 period during which private investment continued to fall, there is no doubt that the 1980-1985 government guidelines on income policy, the rather oldfashioned price and profit margin controls along with labour market rigidities were, on the whole, creating a crowding out mechanism. This view, which effectively suggests that it is the overall stance of economic policy that matters, seems to be justified by events in the following two years (1986-1987) which witnessed the reversal of macroeconomic policy: the adoption, among other policy instruments, of: a) a strict incomes policy effectively based on the drastic reduction of the degree of wage indexation; b) an exchange rate policy aiming at the preservation of international competitiveness based on unit labour costs; c) the liberalization of price and profit margin controls, resulted in a sharp recovery of private manufacturing investment, despite the continuing credit expansion to the public sector and the sharp increase in (ex-post) real interest rates on bank loans following the liberalization of lending rates.

## 5.2 The Relationship Between the Current Account and Net External Debt

Before we close this section, it is worth looking at the relationship between net external debt and the current account. Graph 2 shows that net external debt relative to GDP in Greece was increasing, in parallel to public sector debt, up to 1985. Between 1985 and 1988, a deceleration of the rate of increase of public debt has occured, while net external debt fell sharply. The reduction of the current account deficit in the three years 1986-1988 (Table 4) has played a role, but cannot explain the reversal, since this (the current account) was still showing a (small) deficit. The reversal is actually explained by the rapid increase in the inflow of non-debt creating foreign capital, following the application of the two-year stabilization programme, 1986-1987. In fact, the relationship between changes in net external debt, the current account and net capital inflow (Dornbusch [7], p. 99) may be written as:

$$\Delta (NFB) = CAD - (NILTC + NISTPC)$$

(6)

where  $\Delta NFB$  is the change in net external debt, *CAD* is the current account deficit, *NILTC* is net inflow of long term capital (direct and portfolio investment), while *NISTPC* is net inflow of short-term private capital.

In Greece, which is among the few habitual capital importers in OECD, the net inflow of private capital (NILTC + NISTPC) is traditionally covering part of the current account deficit (Table 6), with net inflow of long term capital (direct and residential investment) being the dominant item. The prevailing up to 1986 negative real interest rates along with an underdeveloped financial market were discouraging short-term capital inflow, while in crisis periods, domestic capital was also fleeing abroad, avoiding the existing exchange controls in various ways. Although data on capital flight are not available, the sign of the balancing item in the balance of payments accounts (Table 6, third row) is sometimes used by the non-technical press as an indication of such movements.

The reversal of macroeconomic policy in 1986 with the application of the two year stabilization programme caused an increase in net capital inflow (both long-term and short-term) and, apparently, a reversal of capital flight. The authorities' change of attitude toward foreign capital (the relevant law was modified in favour of direct investment, while the implementation of a programme of gradual deregulation of financial and product markets started immediately) the overall stance of economic policy and the "1992 project", caused an increase in private long term capital inflow. In addition, the increase in real interest rates, the gradual deregulation of financial markets along with the creation of new opportunities for short-term investment attracted short-term capital. As a result, the net inflow of private capital in recent years exceeded the current account deficits causing a reduction in net external debt.

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## THE GREEK BALANCE OF PAYMENTS - BILLION DOLLARS

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Current account	- 1.0	-1.1	-1.3	- 1.2	-1.8	-2.2	-2.4	- 1.9	- 1.9	-2.1	- 3.3	-1.8	-1.2	-1.0
Net inflow of private capital	0.9	1.1	1.3	1.4	1.3	1.5	1.2	0.7	0.9	0.9	0.8	0.8	1.5	1.8
Balancing item	-0.2	-0.1	-0.09	-0.3	0.5	0.0	0.3	-0.04	-0:3	-0.3	-0.04	-0.08	0.2	0.08
Balance of payments before official borrowing	-0.1	-0.1	-0.0	-0.1	-0.1	-0.7	-0.8	-1.2	-1.3	- 1.6	- 2.5	-1.0	0.5	0.9

Source: BANK OF GREECE.

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## 6. - Can Public Sector Deficits be Sustained?

As we have seen, the large and persistent public sector primary deficits of the last decade have caused a record peacetime increase in public sector debt. In addition: 1) they have reduced the country's national savings ratio in comparison to previous periods and to international standards. In 1987 for instance, the OECD average gross savings ratio was 0.20, while Greece's was 0.15, (the lowest along with the United States') despite a high savings ratio for the household sector (Dean et Al. [5] and OECD [14]). In 1989, this ratio has fallen even more: 2) they have reduced the public sector's net worth, since they are due to consumption and not public investment deficits: 3) they, along with the overall economic policy stance, are crowding out private investment. In fact it is national investment (private and public investment) that has been crowded-out by government current dissaving as Tables 4 and 5 b show; 4) they have failed to boost the economy (as Table 4 shows, the real growth rates were lower in the 80s than in the 70s) casting doubt on whether a small, open economy like Greece, suffering from structural impediments, can use an expansionary fiscal policy to boost output, especially during a period in which its trade partners are following restrictive policies.

Very few would now object to the view that the current fiscal situation in Greece is unsustainable. It is so because the large and persistent primary deficits (generated not during extraordinary circumstances, like wars) combined with rising real interest rates may, at some point in the future, crack the public's confidence, and hence create a crisis with unforeseen consequences, (e.g. a capital flight), in the government's ability to generate primary surpluses to repay the existing debt (Spaventa [17]).

To see what the dynamics of debt accumulation involve we can solve equation (3) recursively to obtain

(7) 
$$d^{T} = do \cdot f^{T} + \sum_{m=1}^{T} (\pi^{m} - b_{m}) f^{T-m}$$

where:  $f = (1 + i^* + p) / (1 + g^* + p)$ , while it has been assumed, in

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order to simplify calculations, that the real effective interest rate  $t^*$ , the real growth rate  $g^*$ , and the change in the GDP deflator, p, are constant:  $i^*_t = i^*$ ,  $g^*_t = g^*$ ,  $p_t = p$ . Using equation (7) we can predict the debt to GDP ratio for some future date T, making assumptions about the relevant parameters. A high real growth rate relative to the effective real interest rate tends to reduce the debt to GDP ratio, d. while persistent primary deficits net of (real) central bank financing tend to increase it. Greece's determination to reduce its inflation rate in order to join the European Monetary Systems exchange rate mechanism at some, not very distant, time in the future, restricts its ability to increase the direct financing of budget deficits by the Bank of Greece, while it also implies that (real) interest rates will increase to European levels. A rather safe, and quite helpful - regarding calculations — assumption to make is that the growth rate  $g^*$  will be equal to the average effective real interest rate  $i^*$  on public debt: Although it looks to be in contrast to past experience, it can be justified given the rapid increase in marginal real interest rates on government borrowing (column 13, Table 1), the short-term nature of new government borrowing and the high real interest rates prevailing worldwide. It is also having a theoretical appeal: it corresponds to the "golden rule of accumulation" of optimum growth theory. (A technical note: approaches to the problem of debt accumulation using differential equations (see, among others, OECD [15]) end up with an indeterminacy in the case where g = i, while the present method. starting from equation (3) and solving it recursively to obtain equation (7), avoids it). Under the assumption  $g^* = i^*$ , equation (7) becomes:

(8)

$$l_T = do + \sum_{m=1}^{r} (\pi_{u_1} - b_m)$$

If, for instance, the 1980-1988 average  $\pi - b$ , which was equal to 0.058, is assumed to prevail during the next decade, then, taking into account that  $d_o = d_{1989} = 1$ , the corresponding ratio at the end of the next decade will be 1.58. That is, the debt to GNP ratio will be 58% higher than it is today. Similarly, the corresponding ratio,  $d_T$ , for a

very large T will tend to infinity. In fact  $d_T$  will always tend to infinity for a very large T, unless the "average" future primary deficit is zero. An interesting, and empirically appealing, case arises, when the primary deficit is positive but declining. It can be shown (using d'Alembert's theorem on the convergence of infinite serie) that  $d_T$  will converge to a finite limit for a very large T, if the primary deficit,  $\pi - b$ , is declining at a constant rate.

If  $g^* > i^*$ , it can be shown from equation (7) that  $d_T$  will always be bounded, provided that primary deficits remain bounded. In the special case where the primary deficit  $\pi - b$  is constant,  $d_T$  will converge to  $(\pi - b) / (1 - f)$  for a very large T. It should be noted, however, that this limit will be a very large one (and may not be practically sustained) if  $\pi - b$  remains at the average 1980-1988 level: for reasonable values of  $g^*$  and  $i^*$ ,  $d_T$  will be close to 4.00, which is a very high debt to GDP ratio — either by historical or by international standards.

Finally if  $g^* < i^*$  the debt to GDP ratio increases without limit (Domar's law).

## 7. - Suggestions for Reducing Public Sector Deficits

A reduction of a large public sector deficit cannot, and should not, be achieved within a short period (Spaventa [17]). It rather requires a medium term programme as well as a social consensus.

## 7.1 The Anatomy of the Current Situation and Potential Sources for Savings

Suggestions for reducing public sector deficits should take into account the existing structure of public sector's revenue and expenditure as well as other characteristics and constraints. In Greece the problem is multidimensional. It can be briefly described as a combination of: a) a very narrow tax-base; b) the large size of the black economy; c) widespread tax evasion; d) overmanning in the public

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sector combined with low productivity; *e*) the high, compared to international standards, defence and administration spending. A use-ful standard of reference is the EEC "average", Using this reference, one night observe:

1) Tax revenue and social security contributions relative to GDP are much smaller than the average EEC level, with the difference being of the order of 7.0 percentage GDP points (European Commission [4]. This difference doesnot reflect lower tax and social security contribution rates (in fact such rates in Greece are above the EEC average, with the exception of certain excise taxes on tobacco, beverages and petrol; a notable exception is also the price of certain public corporations' services, especially transport) but a very narrow tax base. Farmers (25% of the population earning 18% of national income) pay virtually no taxes, because the relevant law is not only generous but remains effectively inactive in spite of the fact that their living standards are now comparable to the rest of the population. Among the self-employed (25% of the population) there is widespread tax evasion, mainly from retail shop-keepers, artisans, merchants, and professionals. In effect, these imply that wage and salary earners are heavily taxed.

It should be noted that one of the factors explaining the small size of the tax base in Greece relative to that in the EEC is the total exemption of interest income from taxation. Although this could be justified until recently when real interest rates were negative, the more recent experience suggests a reconsideration (we will return to this point below). Another factor explaining the size of the tax base is related to the various tax exemptions that have been occassionally granted to various pressure groups, which, according to a popular expression, enjoy a tax-asylum.

2) According to Pavlopoulos [16], a conservative estimate of the size of the black economy is 30% of GDP, taking Greece to the first position in the relevant table of international comparisons, at least for those countries for which data are available. According to the same author, about half of this amount, concentrated mainly in the housing sector, is due to inefficiencies in the system of national accounting and could have been accounted with a slight improvement of the methods and the technical means employed. Another characteristic is that part

of unaccounted transactions are actually being taxed, which implies that a simple cross-checking of data is sufficient for adjusting the GDP.

The implications for the ratio of public sector deficit (and debt) to GDP are serious: under the rather pessimistic assumption that half of the black economy can be measured by improving national accounting, without any extra tax revenue, deficits relative to GDP will be reduced significantly. From Table 7, the general government primary deficit for 1989 is 9% of GDP (expenditure 42.5% of GDP, revenue 33.5% of GDP). With a 15% GDP adjustment factor (which is exactly the size of the factor adopted in Italy for a black economy much smaller than Greece's) the primary deficit, after allowing for a higher contribution to the EEC implied by such a revision, will be reduced by one percentage GDP point. Similarly, the general government financial deficit (primary deficit plus interest payments) will be reduced by three points, while the public sector debt to GDP ratio by 15 points.

3) The widespread tax-evasion is due to a rather inefficient tax-collection system, partly explained by underpaid tax-collectors and partly by lack of computerization which prevents the cross-checking of the various income sources, and a lack of determination to penalize tax-evaders. For instance it is now widely believed that tax evasion in VAT (a strong paradox by international standards) is due to insufficient administrative controls and the delays in the introduction of cashier machines in retail shops. In addition, in those cases where the authorities impose penalties, the situation soon degenerates into a repeated game between the offender and the authorities, with continuous delays and compromises, which usually end up in favour of the offender.

Part of the problem is also due to sociological factors and should be dealt accordingly. For instance, one of the main sources of tax evasion are local services (mainly tourism). Local authorities, which are mainly responsible for monitoring, collecting and reporting, do not show sufficient determination, since in a small place (e.g. an island) people are either relatives or friends. This requires a radical solution which might entail decentralization of spending. If local authorities become responsible both for the administration and the financing of local activities (schools, hospitals etc.) the problem will

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TABLE 7

## THE EVOLUTION OF THE PUBLIC SECTOR PRIMARY DEFICIT — NATIONAL ACCOUNTS BASIS (% of GDP)

	(	General go (1)	vernment		1	Public corr (2)	oorations :			Public s	sector (2):	
·	1989	1990	1992	1994	1989	1990	1992	1994	1989	1990	1992	1994
Expenditure	42.5	41.7	40.5	39.3	11.0	10.5	9.9	9.4				
Nages	15.0	14.5	13.7	12.9	6.4	6.2	5.8	5.5				
pending on goods	7.0	6.7	6.1	5.5	3.1	3.0	2.8	2.0			1.1	
let transfers	16.0	16.2	16.8	17.4	0.0	0.0	-12	-12			1.0	
let subsidies	1.0	0.8	0.4	0.0	-1.0(a)	-1.2	2.5	2.5				
nvestment	3.5	3.5	3.5	3.5	2.5(0)	2.5	12.7	12.0				
Revenue	33.5	34.5	35.5	37.5	12.4	12.5	12.7	13.0	1.1			
axes	23.0	24.0	25.0	27.0								
oc. sec. contr.	10.5	10.5	10.5	10.5					- 7.6	- 52	-22	1.8
rimary surplus	- 9.0	- 7.2	- 4.8	- 1.8	1.4	2.0	2.8	3.0	- 7.0	- J.6	2.2	

(a) From the ordinary budget as well as EEC's Regional Fund.(b) Net of State investment budget subsidies.

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4) Overmanning in the public sector is a deep-rooted problem. Traditionally, the public sector has been used to absorb part of the excess labour supply in the other sectors of the economy, while the fact that Greece's unemployment rate is relatively low by European standards is partly explained by the size and the growth of the public sector.

Given the degree of overmanning, there are ample opportunities for increasing public sector's labour productivity, either by freezing new recruitments or, more realistically, by following a policy of constant employment by balancing the flow of new recruitments with the flow of retired personnel. An example of what this might entail, is the 1987-1989 experience regarding public corporations: During this three-year period, employment remained roughly constant (in fact, it showed a marginal increase), average pay in real terms was also roughly constant, while at the end of 1989 the level of public utility tariffs deflated by the GDP deflator was 20% lower compared to the 1986 level. In spite of the fall of their average real tariff, the average primary surplus for public corporations for the 1987-1989 period was one percentage GDP point higher compared to the 1986 one, while their combined operational surplus before interest and depreciation has been improved by 15% in real terms. The improvement is due to the fact that a much higher output (which, in turn, is due to the high income elasticity of demand for public corportations' products and services) has been met by almost the same number of employees.

If the same policy is to continue and be applied to the rest of the public sector, it should be accompanied by the necessary organizational and managerial restructuring as well as by the consensus of trade unions. It should be noted that such a policy aims at a gradual reduction of public consumption relative to GDP.

5) From Table 7, it follows that public consumption in 1989 was approximately 22% of GDP (salaries 15%, spending on goods 7%) while transfers and subsidies were 17% of GDP. From OECD's national accounts and reports by the European Commission we observe that the level of subsidies and transfers in Greece relative to GDP is almost the same as the EEC average, while public consump-

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tion is approximately four percentage GDP points higher, and even higher compared to Italy's, Spain's and Portugal's. Analyzing public consumption in its various items, we might also observe that spending relative to GDP on education and health is lower than the EEC average, while spending on general administration and defence much higher. The fact that many services to the public are provided in Greece by the general government along with overmanning and low productivity, explain the size of spending on administration. Following a policy of constant employment and constant average real wage, spending on administration relative to GDP will fall gradually, along with the GDP growth rate.

Spending on defence is 6.6% of GDP, taking Greece to the first place among NATO countries, with an average defence spending equal to 3.4% of their GDP (Economicos Tahidromos [8]). According to an ex-Air-Force General Commander (Stappas [18]) there can be drastic reductions in defence spending without affecting the country's defence capabilities, based on a close co-operation among the three forces (Air Force-Navy-Army) regarding personnel and procurement as well as on administrative restructuring. The recent improvement in East-West relations reinforce the argument for cuts in defence spending.

## 7.2 A First Attempt to Quantify a Medium-Term Programme for Reducing Public Sector Deficits

The authorities could follow a medium-term programme for reducing public sector deficits along the lines suggested above. In particular, the programme should concern (and probably announce targets for) the reduction of primary deficits. Interest payments are totally inelastic and, in addition, their inclusion in the target (e.g. by announcing a total PSBR target rather than a target concerning the primary deficit) might confuse the public regarding the fiscal stance of the government.

The programme should aim at both reducing public spending relative to GDP and increasing tax revenue.

## 7.2.1 Public Consumption

a) In the medium-term, employment in the public sector (including public corporations) does not increase, while incomes policy aims at keeping average real pay constant. Alternatively, average real pay might increase, if new recruitments fall short of the number of retired personnel. This might be the result of an agreement with public sector unions.

b) Net spending on goods falls on average by 2.0% per year in real terms during the medium term programme, both for general government and public corporations. For the general government this could be achieved by a larger cut in defense procurement and an increase in education and health.

## 7.2.2 Transfers

Dominated by pensions, transfers increase according to the ageing of the population and the inherent dynamics of existing laws (we might reasonably assume a rate of increase in transfers equal to 4.8% per year in real terms, reflecting the long-term trend of the social security system following the dramatic increases of the early 1980s).

## 7.2.3 Subsidies

Subsidies to the private sector gradually decline to zero following EEC's directives. Net subsidies to public corporations from the general government also gradually decline, while subsidies to public corporations from EEC's Regional Fund increase substantially to finance infrastructural investment projects, following the decision to double EEC's resources for regional funding, especially to the poorer areas of the Community.

## 7.2.4 Investment

Investment by general government and public corporations increases by 3% per year in real terms, reflecting the pressing needs for improvements in the economy's infrastructure.

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## 7.2.5 Tax Revenue

As far as tax revenue is concerned, the previous arguments suggest that there are ample opportunities for increasing it. What is mainly needed is simply a change of attitude by the authorities as far as the (effective) tax exemption of certain income groups are concerned, the severe punishment of tax-evasion, and a little extra spending to modernize the tax-collection system. A conservative estimate of extra-revenue is as follows: a) Activation of the law regarding taxation of agricultural income. Assuming a mere 0.10 effective rate of taxation, extra income is 1.7% of GDP: b) Introduction of a 10% withholding tax on interest income: Greece is among the very few EEC countries with no withholding tax. Now, with the average EEC withholding tax of the order of 25% and high real interest rates, a 10% withholding tax still leaves Greece with a substantial wedge in its favour as far as after-tax interest rate is concerned. It also (partly) corrects the asymmetry in the treatment between interest and dividend income. A rather conservative estimate of extra income is 1.5% of GDP; c) Progress in tackling tax-evasion and the black economy: It might be assumed that, within the next five years, the motivation of the authorities combined with penalties, as well as the activation of the law regarding decentralization, result in (partly) revealing and taxing the black economy. Let us say that 15% of extra GDP is identified (out of 30% of extra GDP which is the estimate of the black economy) and taxed. Following Pavlopoulos (1987) we assume that only a small effective tax rate can be charged on the black economy, let us say 15%. Resulting revenue is 2.2% of GNP. while an additional 1.0% of GDP of savings will appear due to lower spending relative to GDP, because of the GDP revision (see section 7.1.2); d) A small increase in the excise tax on petrol, tobacco and alcohol: Following EEC's directives on the convergence of excise taxes and VAT rates, a (small) increase in the excise tax on petrol. tobacco and alcohol brings at least 0.5% of GDP extra tax-revenue; e) Social Security Contributions: It is assumed that revenues from social security contributions increase by 3% per year in real terms, reflecting the rise in contributions along with GDP growth, as well as some reasonable progress in collecting the (large) arrears to the social security system. Given the built-in-incentives of the present system towards early retirement and the fact that most pensioners are re-employed, measures to remove these incentives and/or tax pensioners' employment will both save revenue as well as reduce unemployment; *f*) Tariffs of public corporations: On average, tariffs adjust according to changes in the GDP deflator, while it might reasonably be assumed, on the basis of past and recent experience, that the income elasticity of demand for public corporations services is approximately 1.3. This might turn out to be a serious underestimation given that, telecommunications and transport, and perhaps other services, will be given an impetus by "project 1992".

Summing up, it turns out that extra tax revenue may be estimated rather conservatively at 7% of GDP, which is actually close to the difference between Greece's tax revenue ratio and EEC's average ratio. However, in order to be on the safe side we will assume that in the next five years, tax revenues will only increase by four percentage GDP points.

Finally we need an estimate of average GDP growth. Although this will in general depend on the evolution of the primary public sector deficit, as well as on the response of the private sector of the economy and hence need a macroeconomic model to estimate it, we will arbritrarily assume that, over the next five years, real GDP will increase by 3% per year. This is slightly lower that the last two-year (1988, 1989) average but substantially higher that the average growth rate achieved in the '80s. The reason that we adopt such a rather optimistic estimate is related to the expected large static and dynamic benefits of European integration (Cecchini [3], Baldwin [1]). Although these benefits will not be distributed equally and automatically among the various members, it can reasonably by assumed that a programme of fiscal consolidation as well as the removal of structural impediments and the overall stance of policy will ensure the country's participation in the benefits of European integration, by encouraging investment, the inflow of foreign capital and the cooperation of domestic and foreign firms. The safety valve of redistributing resources through the various EEC funds is making this assumption even more likely.

Table 7 quantifies and summarises the results of the above

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assumptions. We observe that the public sector's primary deficit relative to GDP is gradually being reduced, it becomes zero in 1993 and turns into a surplus in 1994. This implies that public sector debt relative to GDP will increase up to 1993 and start decreasing in 1994, on the assumption that the average, effective real interest rate on public sector debt will remain close enough to the assumed growth rate (3%), and real Central Bank direct financing of the deficit will be at most equal to the 1980-1988 average ratio. If the interest rate turns out to be substantially higher, the public sector debt will continue to increase relative to GDP, while if it is lower, it might start falling in 1993. Since Greece can retain short-term capital controls up to 1995, it can in principle prevent a large interest rate rise with its destabilizing consequences on public debt. It should be noted that the worsening of the social security primary deficit (net transfers minus social security contributions) requires a gradual increase of the ordinary budgets transfers to pension funds.

An interesting comparison arises between the results of the medium term programme described here and the 1986-1987 stabilization programme adopted by the Greek government. As it is evident from Table 1, column 13, the reduction of the primary deficit between 1987 and 1985 was six percentage GDP points. However, this (large) reduction was mainly, though not exclusively, due to: a) a large fall in the real average wage (14%) and public investment, b) a large windfall gain due to the fall in world crude oil prices and an offsetting increase in the taxation of domestically consumed oil products.

## 8. - Conclusions

The main conclusions of the present paper are the following:

1) the record increase in the public debt to GDP ratio of the last decade is due to a very large increase of social consumption expenditure without a parallel increase in tax revenue. The large increase in public sector deficits failed to boost output;

2) record primary deficits occured during election years (1981, 1985, 1989) indicating the presence of a political business cycle;

3) real, average effective interest rates on central government debt were negative for most of the past decade but are increasing rapidly;

4) the average current account deficit relative to GDP remained roughly constant between 1970-1979 and 1980-1988, although public sector deficits were much higher in the 1980-1988 period. This was not achieved because of higher private sector savings but because of lower private sector investment, through the operation of various crowding-out mechanisms. However, in recent years large changes in public sector deficits coincide with large changes of the same direction in the current account;

5) high public sector consumption deficits should not continue. The country's savings ratio is now the lowest in OECD (along with the US's) despite a high household savings ratio, while a rapidly growing public debt may crack public confidence and lead to capital flight.

6) a programme of fiscal consolidation is described in detail in the present paper. The programme is based on an increase in revenue relative to GDP and a gradual reduction of public consumption relative to GDP;

7) it is shown that under (what they are believed to be) realistic as well as socially acceptable and supply-side friendly assumptions, the public sector primary deficit disappears in 1993 and turns into a (small) surplus in 1994. On the assumption that the average, effective real interest rate on public sector debt remains close enough to the growth rate, the public sector debt relative to GDP will continue to increase until 1993 and start falling in 1994. In fact, since Greece can retain its short-term capital controls up to 1995 and the drachma does not yet participate in the exchange rate mechanism of the European Monetary System, domestic real interest rates can, in principle, be prevented from increasing rapidly, thus destabilizing public debt during the period in which the fiscal consolidation programme operates.

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## **Debts and Deficits in Australia**

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#### 1. - Introduction

The question of the current account deficit and the external debt has become the hottest issue in Australia since the «Bottom of the Harbor» scandal of 1982. The net external debt, currently calculated at a bit more than 30% of GDP (with interest payments at about 3% of GDP), is growing rapidly due to a current account deficit that, in the second half of 1989, was approximately 5% of GDP. The spirited and, at times, hysterical controversy over the debt and deficit issue has been lead by Professor John/Pitchford, who supports (or at least gives comfort to) the Labor government's policy of benign neglect of the deficit, arguing quite sensibly that foreign borrowing is not inherently bad in the absence of externalities that cause the private cost of external borrowing to fall short of the social cost (1). The financial press and, more recently, the business community, have strongly condemned the government's attitude.

One of the more intriguing aspects of the Australian current account deficit and external debt «problem» is the fact that both have emerged during a period in which a large fiscal deficit has been transformed into a substantial surplus, and consumption (saving) as a fraction of GDP has declined (risen) two percentage points (2).

(1) See, for example, JOHN PTTCHFORD: «Does Australia Really Have a Current Account Problem?», in *Policy*, Melbourne. Center for Independent Policy Studies, Winter 1989.

(2) The Australian fiscal year runs from July to June. During 1984/1985, the fiscal deficit was 3.17% of GDP; by 1987/1988 the fiscal *surplus* had risen to 0.70% of GDP and is currently much larger. In the same period, consumption fell from 60.0 to 58.2% of GDP/