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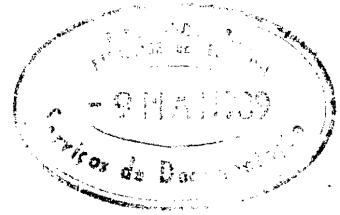
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THE PORTUGUESE EXPERIENCE

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PUBLIC DEBT AND IMPLICIT TAXES: THE PORTUGUESE EXPERIENCE*

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Abstract

A high public debt often implies the willingness and the ability of the government to tax domestic residents implicitly rather than explicitly. For instance, in Italy, the Treasury has used the Central Bank to extract seignorage on a sustained basis. This mechanism need not eliminate the straightforward source of deficit financing in the "financial repression" literature, namely negative real interest rates. A decomposition of the growth of the real public debt in Portugal from 1976 to 1987 suggests the specific conditions of this "high public debt" country and the appropriate solutions. In this particular case, the solutions presented by the government do not seem sufficient to stabilize the debt-to-income ratio.

* A shorter version was presented at the Bologna Meetings of the European Economic Association and will appear in the European Economic Review. Some of the material was also presented in the Seminar for Foreign Bankers organized by the Banco Português do Atlântico in Vilamoura as well as in a seminar on the Portuguese economy sponsored by the Center for International Development Studies in Lisbon. We are grateful to participants for comments and to Miguel Beleza for helpful discussion.

1. Introduction

Government deficits are often associated with controls and implicit taxes. A high public debt thus implies the willingness and the ability of the government to tax domestic residents implicitly rather than explicitly. The straightforward source of deficit financing in the "financial repression" literature is negative real interest rates. Moreover, the Treasury may use the Central Bank to extract seignorage on a sustained basis. A standard decomposition of the growth of the real public debt in Portugal from 1976 to 1987 shows that the relative magnitude of both sources depends on whether foreign borrowing and an implicit interest rate tax is taken into account. There are four phases during this period, which roughly correspond to the macroeconomic policy stances of the successive governments: 1976/79 and 1981/85, expansion followed by external adjustment, 1980 and 1986/87 expansion coupled with anti-inflationary adjustment.

In 1983, as part of the external adjustment program, there was a considerable increase in the domestic nominal interest rates. The opening of banking to new private agents was also decided, after ten years of exclusively public commercial banks. Nevertheless, interest rates have remained very low and the commercial banking system continues to be virtually fully nationalized. Indeed, the interest rate charged on the domestic public debt is administratively fixed, together with the term structure of interest rates. Here we interpret the system of monetary control based on credit ceilings as involving an implicit tax on the interest payments of the Treasury to the Central Bank.

The implicit tax makes financial liberalization at the same time more urgent and riskier for the stability of the banking system, mainly if the government deficit continues a high proportion of output. Given the expected financial liberalization which is associated with the objective of an European internal market in 1992, this trade-off has important implications for policy making in Portugal. While the specific conditions of each one of the member countries involved warrant attention, the approach here adapts work on Italy with good results [1].

2. Public Debt and the Central Bank

The high public debt in Portugal is not due to war. The colonial war effort from 1961 to 1974 never raised the debt to output (GDP) ratio above 22% and it had fallen to less than 18% at the time of the April 25th, 1974 Revolution. Government borrowing was not due to the "natural" recessions or business cycles of the seventies either. Rather it was due to the nationalization of banking and heavy industry in 1974/75. These massive nationalizations, enacted without compensation during a period of revolutionary turmoil, were frozen into a Constitution voted in 1976 as a means of ensuring the transition of Portugal towards a "classless society". Only in 1988 did this economic constitution begin to be amended. Against this background, expansionary demand policies eventually required external adjustment and a program was agreed upon with the IMF in 1978/79. Afterwards, expansion resumed and, in 1980/82, policies were again "out-of-phase" relative to the world business cycle, especially the European economies. Throughout,

the growth of public debt was facilitated by a dependent Central Bank and a system of direct monetary control based on credit ceilings.

Chart 1 shows the Portuguese public debt as a proportion of gross domestic product from 1970 to 1987, together with the domestic debt and the debt held by the Central Bank. Chart 2 focuses on the domestic debt and its decomposition between debt held privately - that is to say mostly by commercial banks - and again debt held by the Central Bank. The Charts show that the Central Bank component began to rise after the 1974 Revolution. During the first IMF stabilization program, the rise was interrupted. Then, in 1980, there was a drop, offsetting the capital gain due to the revaluation of the gold reserves. The accumulation of both components of public debt accelerated subsequently, but after the second IMF stabilization program agreed in 1983-84, the Central Bank component began to decline. The external surplus of 1986/87 was a factor in the decline of the Treasury monetary base, but there is also increasing awareness that the "high public debt" may reverse the anti-inflationary program initiated in late 1985, which managed to cut the rate of increase of the output deflator from 20% in 1985 to 11% in 1987, thus bringing ex post real interest rates up from -11% to -1%. Meanwhile, the official government budget deficit net of interest fell from 4% to 2% of output over the same period.

The Charts show the uninterrupted growth of the debt held by the private sector (BB, including the external debt of state-owned enterprises) and the decrease of privately held domestic debt (B) during the IMF stabilization package. The nationalizations induced financial irresponsibility on the part of state-owned industrial enterprises, which always were able to borrow from the state-owned commercial banks.

Because they could easily finance their massive investments, they ended up with increasing operating deficits, swelling the growing borrowing requirement of the central government and local authorities with loans never to be repaid by industrial enterprises in difficulty [2]. As a consequence, proceeds from the privatization of state owned enterprises announced in 1988 will be in part allocated to debt reduction. In face of the mounting debt problem, though, once the former stockholders are compensated, the proceeds should be exclusively devoted to retiring public debt.

Until 1976, the public debt held by the Central Bank included the accounts of the Monetary Fund of the Escudo Area. This Fund managed the financial flows among Portugal and its former colonies, i.e. among the Portuguese Escudo and the currency of each colony. Though the stocks of the debt associated to this Fund are easily identified in the Central Bank accounts, and are therefore excluded from the debt figures, its interest flows are not. Therefore, interest figures needed to compute domestic seigniorage in the period 1970-5 could not be obtained. As a consequence, the seigniorage analysis performed covers the period 1976-87.

In 1980, the Treasury decided to revalue the stock of gold reserves. The book value was put at US\$ 255 per troy ounce, up from US\$ 35 (this was repeated in 1988). Thus, the public debt held by the Central Bank was significantly reduced, given the size of the stock (more than 600 tons) while the debt held by the private sector continued to increase. As mentioned, both the rate and the base of seigniorage were dramatically reduced in 1980. To avoid problems of interpretation concerning this episode, we take 1980 as a single phase. It also turns

out to have been a one-year reformist government with policies not unlike the one which has been in office since late 1985.

3. The interbank market and implicit taxes

The interbank market in Portugal fulfills two roles: (i) the usual role of the market for non-interest-bearing bank reserves, and (ii) the role of absorbing and remunerating the potential excess liquidity of the banking system. Excess liquidity arises from the very mechanism of direct monetary control.

The banking system has been the almost exclusive market for savings, a situation which started changing in 1986 with the development of the capital market, after private banks were allowed to operate. The policy of administered interest rates has consistently tried to keep real deposit rate positive in order to stimulate savings. Furthermore, credit ceilings are established on an individual bank basis, according to the amount and type of deposits banks have in their portfolio, as well as their own capital resources. The system is thus designed to stimulate bank deposits, specially time deposits.

Demand for credit, however, frequently exceeds what can be afforded by a responsible monetary programming. This is especially true in the phase of strong growth of output and investment that began in late 1985. The allocation of credit to the productive sector has to be further squeezed due to the debt behavior of the General Government, which preempts a large share of total credit available to the economy.

As a consequence, the Central Bank has no alternative but to freeze the potential excess liquidity which ends up in the banking system. In order to avoid the (rational) response on the part of commercial banks of turning down requests for deposits, since these cannot find their way into loans, the Central Bank has rewarded the above mentioned excess liquidity at reasonable interest rates. Since interbank interventions have been increasing at a fast rate in recent years, the effective interest rate on the public debt held by the Central Bank has remained negative in real terms. This maintains Treasury seignorage at a higher level than would be the case without taking into account the interbank market [3].

Low (or negative) real interest rates then imply a tax, made possible by: a) directly imposing nominal interest rates far below market rates before 1985 and b) by maintaining system of direct monetary control which requires increasing interbank market interventions by the Bank of Portugal since 1986.

4. The accumulation equation

The debt accumulation equation states that, in each period, the change in the stock of outstanding debt equals the primary deficit plus interest payments:

$$[1] \quad dD = J + F$$

where D the stock of debt at the beginning of the period

J interest payments

F the primary deficit

Unfortunately, a debt accumulation equation like [1] cannot be built directly from official figures provided by the Bank of Portugal and the Ministry of Finance. In effect, there is a persistent tradition in Portugal of excluding from the General Government budget part of its financial operations, namely transfers to state-owned enterprises (so called "Treasury operations"). Most of these transfers, which appear only in the PSBR, are disguised as loans even though the probability of their repayment is widely acknowledged to be zero. Also, more recently, the General Government decided to take over the debt of some extinct public entities, such as the Housing Development Fund and the Supply Fund. As a result, the stock of outstanding public debt has increased either directly by the amount of the debt of those entities, or indirectly through the corresponding increase in the PSBR rendered necessary to service it. Therefore, neither the PSBR is the exact counterpart of the budget deficit, mainly due to above mentioned Treasury operations, nor the yearly change in the stock of outstanding debt is equal to the corresponding year PSBR, mainly due to debt take over operations or other unreported debt operations.

We distinguish domestic (DB) from foreign debt (EB) and privately held debt (BB and B) from domestic debt held by the Central Bank (MT):

$$[2] D = DB + EB + B + MT + EB = BB + MT$$

We can then rewrite [1] in terms of either domestic or total privately held debt:

$$[3] dD = dB + dEB + dMT = JB + JEB + JMT + F = dBB + dMT = JBB + JMT + F$$

We thus obtain a measure of the implied primary deficit, F1 as:

$$[4] dBB = F1 + JBB - (dMT - JMT)$$

We net from JMT interest payments of the Central Bank to commercial

banks due to administrative controls namely interest rate subsidies and the operation of the interbank market, JMC. The gross implicit rate is then $ig=JMT/MT$ and the net rate $in=(JMT-JMC)/MT$. We define MT as the Treasury monetary base or the base of the domestic seignorage tax and the net asset accumulation as the tax rate. Using the net rate, we have $TAX=dMT/MT-in$. Using the gross rate we have $TAG=dMT/MT-ig$. The various measures are reported in Table 2. Using these definitions, we have:

$$[5] \quad dBB=F1+JBB-MT*TAG=F2+JBB-MI*TAX$$

$$\text{where } F2=F1+JMC$$

If we take as given external borrowing, we can express the accumulation of domestic privately held debt as a function of the deficit net of foreign debt accumulation and the net accumulation of Central Bank debt:

$$[6] \quad dB=F3+JB-TAG*MT=F4+JB-TAX*MT$$

$$\text{where } F3=F1+JEB-dEB$$

$$\text{and } F4=F3+JMC$$

We can also interpret these variables in real terms (using the consumer price index or the gdp deflator) but here we decompose the growth of privately held public debt as a proportion of nominal income Y:

$$[7] \quad d(BB/Y)=F1/Y+(ibb-dY/Y)BB/Y-TAG*MT/Y=F2/Y+(ibb-dY/Y)BB/Y-TAX*MT/Y$$

$$\text{where } ibb=JBB/BB$$

If we focus on domestic debt and the net interest payments, we get:

$$[8] \quad d(B/Y)=F4/Y+(ib-dY/Y)B/Y-TAX*MT/Y$$

$$\text{where } ib=JB/B$$

The primary deficit obtained from the debt accumulation equality is equal to the difference between the stock of outstanding debt at the end and at the beginning of each year minus the interest paid during the

year. Chart 3 shows the difference between the actual primary deficit and the two alternative measures of the implied deficit F1 and F4, i.e. total debt and gross interest and domestic debt and net interest payments. An adjusted actual primary deficit including Treasury operations since 1984 is in Table 5 and the figures with the total debt and net interest are in Table 6 below.

5. Seigniorage and other contribution to deficit financing

Measuring seigniorage as the change in the monetary base as % of GDP - the usual measure - shows a decline from around 6% to 1% in 1984/86, even though, through the external surplus, it rose to 3% in 1987 (chart 4). Treasury seigniorage is negative only in 1980, but excluding the interbank market, the gross measure is also negative in 1986/87. The net measure vanishes in 1987 [4].

The averages for the components of the monetary base reported in Table 3 obscure some year-to-year variations, where the decomposition of the change in the Treasury monetary base shows a falling demand (supported by a rising velocity) until 1987, when real monetary base rose at 10% and, due again to the external surplus, the Treasury monetary base fell 23% in relation to total.

As mentioned, there are four phases since 1976, which have a rough correspondence with governments: socialist until 1979, reformist in 1980 and 1986/87 and a mixture in-between. Tables 1-7 presents the phase averages.

Table 1 shows how the expansion periods were periods of intense foreign borrowing, whereas, in 1980 and in 1986/87, foreign debt was repaid. This is evident in the rise of the domestic share from 48% in 1981/85 to 62% in 1986/87.

Table 2 shows how the implicit interest rates on privately held debt compare with the rates on Central Bank debt. External debt was almost concessional in 1976/79 with a 2% implicit rate relative to 10% on domestic debt and 5% net on Central Bank debt. Afterwards, the rate on domestic debt remained at about 12%, the gross rate on Central Bank debt at 15-16%, and profits of the Central Bank at 2% of the Treasury monetary base. Conversely, during the 1981/85 expansion phase, external debt increased from 7-8% to 11%, and net Central Bank debt fell from 6% to -2%. The major source of the difference between the net interest rate and the profits of the Central Bank has to do with the spread on foreign exchange operations as well as the capital gains and losses on foreign exchange reserves.

Table 3 shows that the total monetary base grew at about 4% until it fell to 2% in 1986/87, whereas the Treasury monetary base - excluding the odd year of 1980 - fell from an average increase of 50% p.a. in 1976/79 to 32% in 1981/85 and less than 2% in 1986/87. The fall in real money balances in 1981/85 during the expansion phases is also noteworthy, together with the remarkable decline in nominal income growth from 23% to 21%, in spite of an increase in real growth from 1 to 4%.

Table 4 shows that the Treasury seignorage tax base has grown from

20% to 23% from 1976/80 to 1981/87 but that the gross rate became negative during the anti-inflationary phase and was more than halved during the second expansion phase, thus halving seignorage as a percentage of output. The net figures are less dramatic, even though seignorage falls from 8-6% in 1976/79 and 1981/85 to 1% in 1986/87.

Table 5 compares the four implied deficits with the official figure and the adjusted one. The latter shows a surplus in 1980 but a larger deficit in 1986/87. The decline is minor for the net figure using total debt and is actually reversed when domestic debt is used, because of the intense repayment of foreign debt.

Overall, the Tables show a situation which appears more distorted than the situation in Italy before the so-called "divorce" between Banca and Tesoro in 1981. The increase of 5% p.a. on average in the debt to income ratio, clearly unsustainable, is recorded despite negative real interest rates and high growth rates, so that the difference is about 4%. The fall in the implied deficit from 13% in 1981/85 to 10% in 1986/87 is less dramatic than the fall in Treasury seignorage from 6% to 1%. Once the actual deficit is netted out, a large residual remains, underscoring the severe lack of correspondence between the official figure net of interest and the components of debt accumulation.

Overall, the figures reported in Tables 6 and 7 show highly negative real interest rates, high primary deficits and high seignorage. The difference between the real interest rate and the rate of growth of output is negative throughout the period. The same can be said of the covered interest differential with the dollar [5].

With total debt and the gross interest figures, as in the left panel of Table 6, the implied nominal rate on privately-held debt rises from 9% to 10% between 1985 and 1987, whereas the one paid on the public debt held by the Central Bank falls from 19% to 15%, implying that the contribution of seignorage as a proportion of output fell from 3% in 1985 to -17% in 1987. The implied deficit, in turn, fell from 38% to 13% of output, the difference with the actual figures being due to external borrowing and adjustments. When Central Bank interest payments to the banking system are taken into account, the implied effective interest falls from 2% to -3%, and the contribution of seignorage as a proportion of output falls from 14% to zero, whereas the implied deficit fall from 50% to 20% of output. When all the profits of the Central Bank are included in the definition of the seignorage tax rate, the seignorage falls from 1976 to 1979, and from 1986 to 1987 and increases from 1980 to 1985.

Using domestic debt only as in Table 7, the seignorage tax base remains high at 23%, so that, despite the brutal fall in the tax rate from 26% in 1981/85 to 3% in 1986/87, total seignorage remains 1% of output.

6. Solutions to the public debt problem.

The Portuguese public debt situation is potentially serious since there has been no connection between debt management and macroeconomic policy. No clear policy exists with respect to the mix between internal

and external borrowing or between short and long term debt. Circumstances, especially the existence and size of the spread required by foreign banks, dictated the option of borrowing or repaying. The absence of tax smoothing is also evident in the transition arrangements for the implementation of the income tax in 1989. Given the preference for implicit taxation this is of course not surprising.

The consequence is that debt is increasingly short-term, in a period of transition to indirect methods of monetary control and financial liberalization. Moreover, the pattern of expenditure and revenue continues to be such that the size of primary surpluses is not enough to effectively curb the growth of public debt.

Giavazzi and Spaventa (1988) have a thorough discussion of the Italian experience and of the solutions to the debt problem usually cited, which are the ones appropriate to the country's experience. Here we state five solutions:

- a) To default;
- b) To introduce a once-and-for-all extraordinary tax on wealth (capital levy);
- c) To generate inflation to reduce the real value of nominally denominated debt;
- d) To create surpluses by reducing expenditure and transfers and/or increasing taxes;
- e) To privatize.

The Portuguese government has announced a combination of d) and e) but the government forecast do not generate primary surpluses sufficient to stabilize the debt to output ratio by 1992.

Notes

[1] See Bruni, Porta and Penati (1988) and Salvemini and Salvemini (1987). While we focus on Portugal, some of the issues may also be relevant for the other two "newly-integrating countries" of the European Community - Greece and Spain -, as argued in Macedo (1988 d) and, indeed, for many LDCs as suggested by McKinnon (1988).

[2] The debt to output ratio which was about 70% in 1987 would be considerably increased if it included the guaranteed debt of state-owned enterprises. By itself, the debt of the nationalized electric power company accounts for 25% of the total public debt.

[3] The situation of Portuguese commercial banks is analyzed in Macedo (1988 a and c). See also Sergio and Crespo (1988).

[4] This is the cash flow measure used by Gross (1988), who contrasts it with an opportunity cost measure like ibb MB.

[5] Using data from September 1982 to January 1988, Frankel (1988) finds an average real interest rate differential with the dollar of -3.9% whereas for 25 countries (most of it developed), the average is -1.7%. The coefficient of variation for Portugal is (in absolute value) 2.9 whereas the sample average is 3.7. This suggests controls to prevent capital outflows, as discussed in Macedo (1988b and d).

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Table 1 - Portuguese real public debt: Total and Domestic

Years	% ch. real tot priv pub debt (BB/P) 1=2+3	Contribution of:		Dom priv debt/ tot priv debt B/BB 4	% ch. real dom priv debt (B/P) 5
		External 2	Domestic 3=4*5		
1976/9	2.8%	9.2%	-6.4%	58.7%	-10.5%
1980	31.0%	-8.2%	39.1%	55.2%	70.9%
1981/5	14.7%	10.1%	4.6%	48.0%	9.1%
1986/7	15.5%	-4.5%	20.0%	62.3%	32.2%

Table 2 - Implicit Interest rates

Years	PRIVATELY HELD			CENTRAL BANK (MT)		
	Total (BB)	Domestic (B)	External (EB)	Gross (ig)	Net of interbank (in)	Profits
1976/79	7.5%	10.1%	2.3%	6.3%	5.4%	5.8%
1980	10.8%	12.6%	7.3%	6.2%	0.9%	0.2%
1981/85	11.6%	12.1%	11.4%	15.3%	5.8%	2.1%
1986/87	10.7%	12.5%	7.7%	15.9%	-1.7%	1.7%

Table 3 - Components of the Monetary Base

-18-

Years	% ch. in real stock of total monetary base			% ch. in ratio	Change in	Change in	
	% ch. GDP deflator	% ch. real GDP	% ch. base's veloc.	Total	Treas.	Treasury	
					to total monetary base	monetary base	total monetary base % of GDP
1	2	3	4=2-3	5	6=1+4+5	7	
1976/79	18.7%	5.1%	11.6%	-6.5%	37.6%	49.8%	3.7%
1980	17.6%	4.0%	1.9%	2.1%	-52.2%	-32.4%	4.0%
1981/85	20.0%	1.0%	6.3%	-5.3%	17.1%	31.8%	3.9%
1986/87	14.7%	4.4%	3.9%	0.5%	-13.6%	1.6%	2.2%

Table 4 - Treasury seignorage

YEARS	TAX BASE % of GDP	rate		total % GDP	
		TAG	TAX	GROSS	NET
1976/79	18.8%	43.5%	44.3%	7.6%	7.8%
1980	20.2%	-38.6%	-33.3%	-7.8%	-6.7%
1981/85	23.0%	16.6%	26.0%	3.5%	5.8%
1986/87	23.2%	-14.3%	3.3%	-3.3%	0.8%

Table 5 - Primary Deficits as % of GDP

Years	PRIMARY DEFICITS				ACTUAL	ADJUSTED *
	F1	F2	F3	F4		
1976/79	8.9%	9.1%	6.8%	7.0%	5.2%	5.2%
1980	-1.0%	0.0%	-0.3%	0.8%	6.3%	-7.4%
1981/85	9.8%	11.8%	5.9%	7.9%	5.2%	5.3%
1986/87	5.3%	9.0%	5.9%	9.7%	0.5%	2.2%

* Excluding gold revaluation (ESC 168.7 bn in 1980) including Treasury operations since 1984 (ESC 80 bn in 1986/87)

Table 6 - Break down of the change of the ratio of Total Public Debt to GDP

Years	ch. Debt/GDP ratio		Debt /GDP ratio	Growth & Interest +	Contribution of:			
	(BB/Y)	(r-g)			GROSS		NET	
	1=4+5-6	2	3	4=2*3	5	6	7	8
1976/79	-0.4%	-16.3%	15.9%	-2.6%	9.9%	7.8%	10.1%	8.0%
1980	5.0%	-10.9%	18.7%	-2.0%	-1.0%	-7.8%	0.0%	-6.7%
1981/85	4.1%	-9.4%	30.4%	-3.0%	10.8%	3.8%	13.1%	6.0%
1986/87	5.2%	-8.4%	46.0%	-3.8%	5.8%	-3.1%	9.8%	0.9%

NOTE: Values may differ from earlier tables due to rounding

Table 7 - Break down of the change of the ratio of Domestic Public Debt to GDP

Years	ch. Debt/GDP ratio		Change of		Dom. Debt /GDP ratio	Contribution of:		
	(BB/Y)		External ratio	Domestic ratio		(r-g)	*	Growth & Interest
	1=2+3	2	3=6+7-8	4	5	6=4*5	7	8
1976/9	-0.4%	1.1%	-1.5%	-13.6%	9.3%	-1.3%	7.8%	8.0%
1980	5.0%	-1.8%	6.8%	-9.1%	10.5%	-0.9%	0.8%	-6.7%
1981/5	4.1%	2.6%	1.5%	-8.9%	14.1%	-1.3%	8.8%	6.0%
1986/7	5.2%	-2.7%	7.9%	-6.7%	28.9%	-1.8%	10.6%	0.9%

NOTE: Values may differ from earlier tables due to rounding

Chart 1

PORTUGUESE PUBLIC DEBT
as a % of GDP

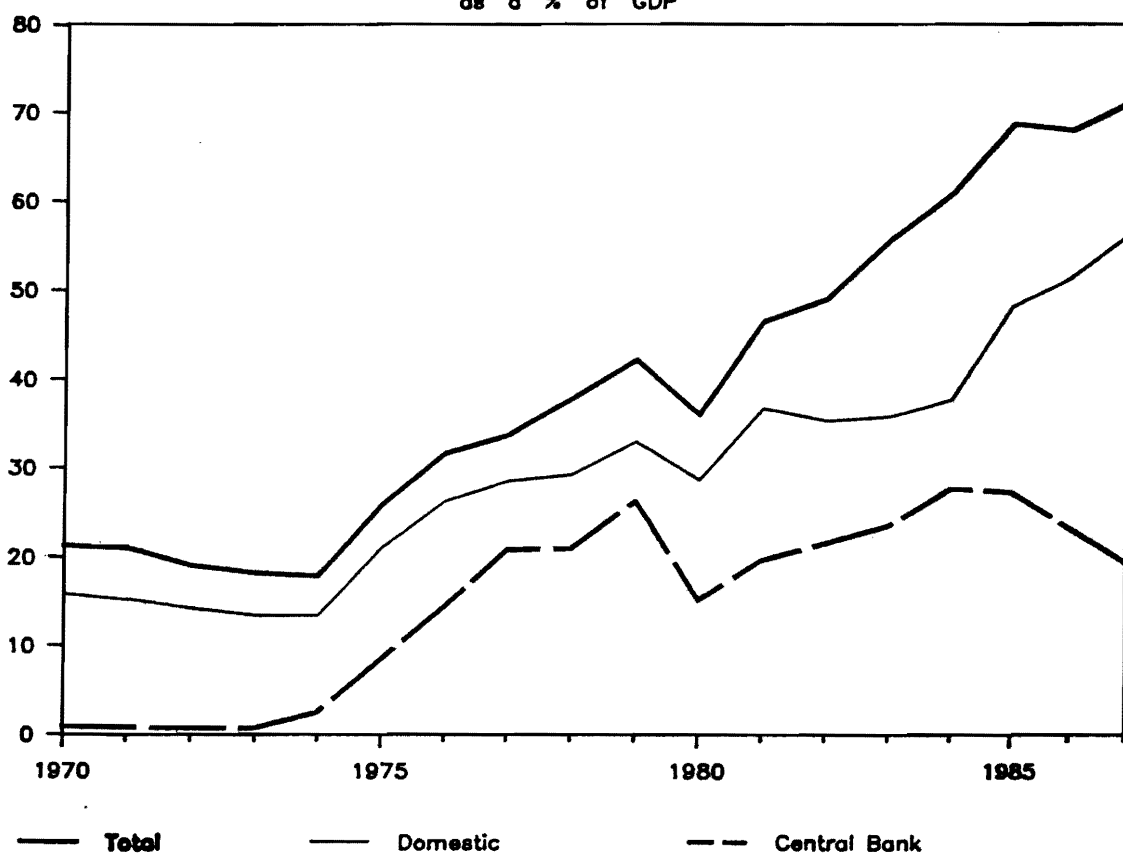


Chart 2

DOMESTIC PUBLIC DEBT
as a % of GDP

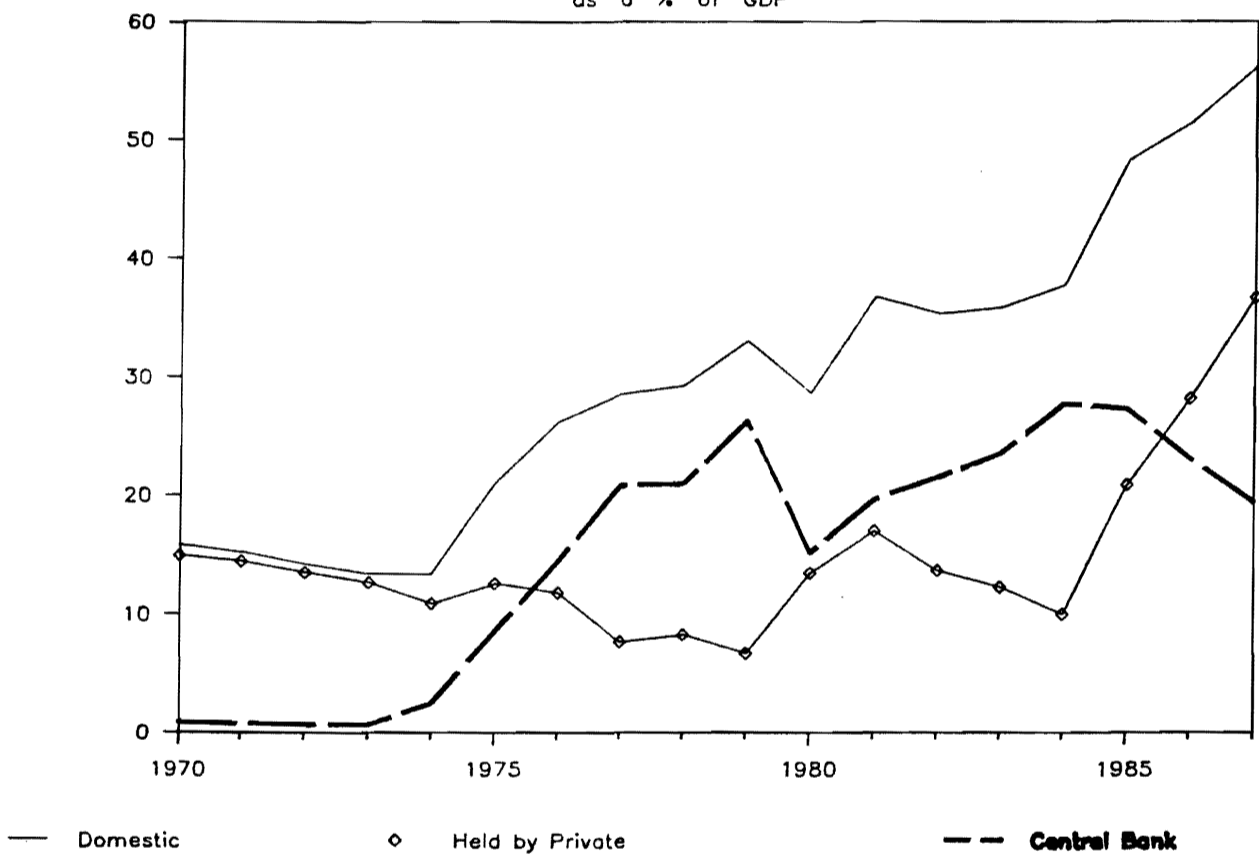


Chart 3

PRIMARY DEFICITS
As a percentage of GDP

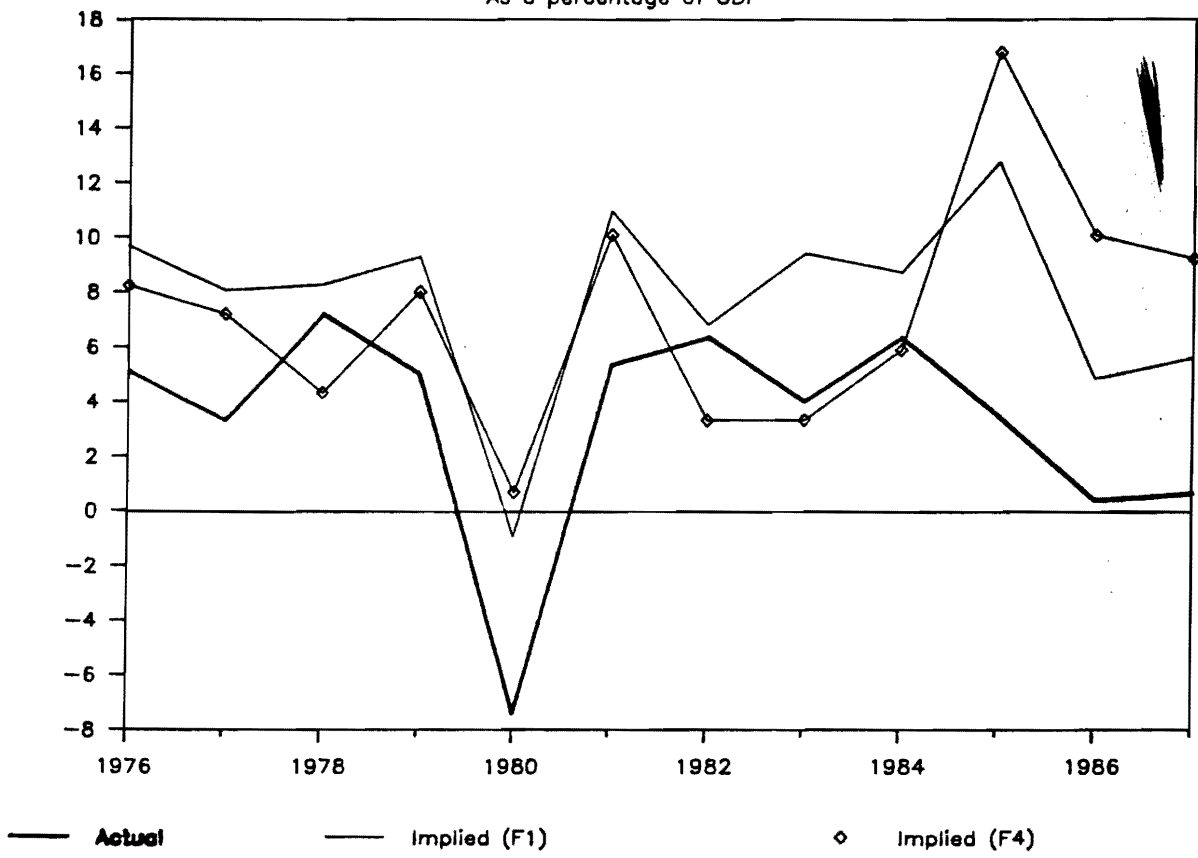


Chart 4

SEIGNIORAGE
As a percentage of GDP

