THE SIZE, FINANCING AND IMPACT OF THE PUBLIC SECTOR DEFICIT, 1975-1984

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The Size, Financing and Impact of the Public Sector Deficit, 1975-1984

by

Rosario G. Manasan

I. INTRODUCTION

The years 1975-1982 witnessed the rapid expansion of public sector expenditures, specifically, investments. This is but a reflection of the active role played by the government during this period. This development, together with the poor revenue performance of the tax system and the dismal internal cash generation capability of the government corporate sector, has given rise to huge public sector deficits. These large fiscal deficits is generally perceived as having played a major role in the collapse of the economy in 1983-84. Moreover, because of the heavy emphasis on foreign loans in financing government deficit-spending in the late seventies to early eighties, the country is likely to face the grim prospect of high levels of government deficits in the future.

It is in this context that the present paper reviews the country's experience with deficit-spending in the last decade. Section 2 documents the size of the government deficit in the period. This section presents the profile of a consolidated public sector (i.e. national government plus local government and 60 government corporations) deficit for 1975-1984. In the past, a consistent time series on this aggregate has not been available for the Philippines. On the other hand, Section 3 reviews the manner by which the government has chosen to finance the fiscal deficit in the period, while section 4 focuses on the economic consequences of deficit-financing of government expenditures. In particular, the implications of the fiscal deficit on public debt (foreign and domestic), interest rate, capital formation, money creation, and inflation is analyzed. Finally, Section 5 summarizes the lessons that can be drawn from this experience.

II. THE SIZE OF THE PUBLIC SECTOR RESOURCE GAP

The last decade (1975-1984) is characterized by an unprecedented surge in public investments. From 1.5 per cent of the gross national product (GNP) in 1971, public sector investment averaged 10 per cent of GNP in 1975-1984 (Table 1). While gross domestic capital formation in the aggregate also jumped from 21 per cent of GNP in 1971 to 30 per cent of GNP in 1975-1984, it is the public sector which played the lead role in this expansion. For the same

TABLE 1: CONSOLIDATED PUBLIC SECTOR INVESTMENT AND SAVINGS, 1975 - 1984

(in million pesos)

Year	TOTAL PUBLIC SECTOR			NATIONAL GOVERNMENT a/ b/			LOCAL GOVERNMENT c/		
	Investment	Savings	I-S Gap	Investment	Savings	I-S Gap	Investment	Savings	I-S Gap
1975	8179.87	4177.34	4001.33	2343.51	3729.32	-779.81	321.00	-531.00	852.00
1976	20533.85	4434.39	16099.46	2387.61	3746.06	-758.45	361.00	-628.00	989.00
1977	14419.16	5153.24	9265.92	3005.64	4840.02	-1834.38	386.00	-548.00	934.00
1978	14730.20	7934.76	6795.44	4888.00	7236.36	-2348.28	396.00	-617.00	1007.00
1979	21796.55	12607.02	9189.53	5468.58	11770.75	-6302.17	443.00	-807.00	1256.00
1980	21712.38	14637.87	7075.11	8788.57	13291.54	-4502.97	532.00	-871.00	1403.00
1981	41393.75	14639.13	26700.62	13373.44	12349.81	1623.63	654.00	-965.00	1624.00
1982	32915.95	12830.50	20085.45	12292.40	10100.60	2191.8	697.00	-1473.00	2170.00
1983	33559.19	17693.55	15865.64	12813.57	15234.54	-2420.97	829.00	-1741.00	2570.00
1984	43896.71	19557.51	23539.20	10849.00	13956.06	-3107.06	891.00	-2119.00	3010.00
1975-1984	252344.21	113725.31	138618.38	78016.40	101456.06	-23438.66	5515.00	-10300.00	15615.00
Ratio to GNP (%)									
1975	7.15	3.65	3.50	2.58	3.26	-.68	.28	-.46	.74
1976	15.38	3.30	12.00	2.23	2.79	-.57	.27	-.47	.74
1977	9.41	3.36	6.05	1.96	2.64	-.67	.25	-.36	.61
1978	8.32	4.48	3.84	2.76	4.09	-1.33	.22	-.35	.57
1979	10.00	5.78	4.21	2.51	5.40	-2.89	.21	-.37	.58
1980	8.21	5.53	2.67	3.32	5.02	-1.70	.20	-.33	.53
1981	13.64	4.84	8.79	4.60	4.07	.53	.22	-.32	.53
1982	9.81	3.83	5.99	3.66	3.01	.65	.21	-.44	.65
1983	8.86	4.67	4.19	3.38	4.02	-.64	.22	-.46	.68
1984	8.19	3.72	4.47	2.06	3.79	-1.73	.17	-.40	.57
1975-1984 (Ave.)	9.68	4.36	5.32	2.99	3.89	-.90	.21	-.40	.61

TABLE 1: CONSOLIDATED PUBLIC SECTOR INVESTMENT AND SAVINGS, 1975-1984 (Cont'd)
(in million pesos)

Year	TOTAL PSE's Investment	TOTAL PSE's Savings	TOTAL PSE's I-S Gap	PUBLIC SECTOR ENTERPRISES: SOCIAL SECURITY Investment	SOCIAL SECURITY Savings	SOCIAL SECURITY I-S Gap	NON-FINANCIAL Investment	NON-FINANCIAL Savings	NON-FINANCIAL I-S Gap	FINANCIAL Investment	FINANCIAL Savings	FINANCIAL I-S Gap
1975	4309.36	979.62	3329.74	469.54	604.89	-135.35	2293.69	242.77	2050.92	2146.13	131.96	2008.17
1976	17185.24	1316.33	15868.91	1704.56	932.06	772.5	10382.55	826.28	10156.27	5098.13	157.99	4940.14
1977	11027.52	1661.22	9366.3	556.37	1136.24	-579.87	7634.56	344.78	7343.78	2776.59	180.20	2596.39
1978	9452.12	1315.40	8136.72	25.66	1278.32	-1252.66	7387.44	-179.60	7567.04	2033.02	216.68	1822.34
1979	15878.37	1643.27	14235.7	1030.46	1625.34	-594.88	10109.07	-267.74	10376.81	4733.44	283.67	4453.77
1980	12392.41	2217.33	10175.08	-4132.09	1950.42	-6082.51	12241.46	-212.66	12454.12	4283.04	473.57	3803.47
1981	26767.31	3314.32	23452.99	3037.93	1983.63	1114.3	18062.12	932.55	17123.57	5667.26	338.14	5209.12
1982	19326.55	4282.90	15723.65	225.74	2047.28	-1821.54	14536.95	1717.99	12816.96	5163.86	435.62	4728.24
1983	19916.62	4200.81	15716.61	474.81	2226.36	-1752.35	12143.12	1529.15	10613.97	7293.49	444.50	6848.99
1984	31356.71	1720.45	29636.26	6676.76	4024.90	2651.86	18421.35	3815.90	14605.37	6258.60	-6120.43	12379.03
1975-1984	166812.81	22570.85	146241.96	10128.94	17809.44	-7680.5	113284.31	8151.5	105132.81	45399.56	-3330.10	48789.66
Ratio to GNP (%)												
1975	4.29	.86	3.43	.41	.53	-.12	2.01	.21	1.80	1.87	.12	1.75
1976	12.81	.98	11.82	1.27	.69	.58	7.74	.17	7.57	3.80	.12	3.68
1977	7.20	1.08	6.11	.36	.74	-.38	5.02	.22	4.80	1.81	.12	1.69
1978	5.34	.74	4.60	.01	.72	-.71	4.17	-.10	4.27	1.15	.12	1.03
1979	7.28	.75	6.53	.47	.75	-.27	4.64	-.12	4.76	2.17	.13	2.04
1980	4.68	.84	3.85	-1.56	.74	-2.30	4.63	-.08	4.71	1.62	.18	1.44
1981	8.82	1.09	7.72	1.02	.65	.37	5.95	.31	5.64	1.85	.13	1.72
1982	5.94	1.25	4.69	.07	.61	-.54	4.33	.51	3.82	1.54	.13	1.41
1983	5.26	1.11	4.15	.13	.59	-.46	3.21	.40	2.80	1.93	.12	1.81
1984	5.96	.33	5.63	1.27	.76	.50	3.50	.73	2.78	1.19	-1.16	2.35
1975-1984 (Ave.)	6.48	.87	5.61	.39	.68	-.29	4.35	.31	4.03	1.74	-.13	1.87

a/ Excludes equity contribution, net lending to 58 PSEs included in consolidation.

b/ Includes national government subsidies to other levels of government included in consolidation.

c/ Excludes national government subsidies.

Sources: National and local government data came from Ministry of Finance (See Appendix Table 1 and 2).
Government corporation data came from GCMCC (See Appendix Table 3).

period, the public sector's investment expenditures grew by 20.3 per cent per annum, while that of the private sector lagged behind, with an average growth rate of 9.4 per cent per year. Although the private sector maintained its dominant position in capital formation, its share in gross domestic capital formation (GDCF) consequently dwindled from 75.8 per cent in 1975 to 57.2 per cent in 1984 (Table 2). This development may be attributed to the following factors: (1) a conscious effort on the part of the government to make up for the low public investment levels in the earlier years; (2) the countercyclical public expenditure program undertaken by the government in response to the world recession of the early eighties; and (3) increased availability of foreign loans in the period up to 1982.

On the other hand, public sector savings averaged 4.4 per cent of GNP in the decade. As a proportion of GNP, public savings followed an inverted U pattern in the period, with the peak occurring in 1979. A similar pattern was exhibited by national government revenues. In terms of the rate of growth of savings, the public sector also led the private sector, although to a lesser extent. Public sector savings expanded by 18.7 per cent while private sector savings increased by only 12.2 per cent. Consequently, the public sector's share in gross domestic savings rose from 15.1 per cent in 1975 to 22.6 per cent in 1984.

TABLE 2: SAVINGS AND INVESTMENTS OF PUBLIC AND PRIVATE SECTOR, 1975 - 1985
(in million pesos)

	SAVINGS			INVESTMENT		
	Private Sector	Public Sector	Gross Savings	Private Sector	Public Sector	Gross Capital Formation
1975	23536.06	4177.94	27716	25660.13	8179.87	33840
1976	29636.61	4434.39	34071	21459.15	20533.85	41993
1977	34109.76	5153.24	39263	29949.84	14413.16	44363
1978	35783.24	7934.76	43718	36617.80	14730.20	51348
1979	45316.38	12607.62	57924	45896.45	21796.55	67687
1980	53422.13	14637.87	68060	53440.02	21712.98	81153
1981	63223.87	14699.13	77923	56861.25	41399.75	98261
1982	58351.50	12830.50	71182	63605.05	32915.95	96521
1983	58136.45	17693.55	75830	68966.81	33559.19	102526
1984	66778.49	19557.51	86336	57723.29	43036.71	100820
1975-1984	468295.09	113725.91	582023	466173.79	252344.21	718518
Percentage Distribution						
1975	84.92	15.07	100.00	75.63	24.17	100.00
1976	86.98	13.02	100.00	51.10	48.90	100.00
1977	86.88	13.12	100.00	67.50	32.50	100.00
1978	81.85	18.15	100.00	71.31	28.69	100.00
1979	78.24	21.76	100.00	67.80	32.20	100.00
1980	78.49	21.51	100.00	73.24	26.76	100.00
1981	81.14	18.86	100.00	57.87	42.13	100.00
1982	81.98	18.02	100.00	65.90	34.10	100.00
1983	76.67	23.33	100.00	67.27	32.73	100.00
1984	77.35	22.65	100.00	57.25	42.75	100.00
1975-1984	80.46	19.54	100.00	64.88	35.12	100.00

Sources: National Accounts Staff
Table 1.

Nevertheless, public sector savings consistently lagged behind public investments, averaging 5.3 per cent of GNP, and this contributed to the large fiscal deficits prevalent in the period. In contrast, private sector investment and savings were about equal, on the average, in 1975-1984.

Public sector investments were largely carried out by government corporations. Public sector enterprises (PSEs) contributed 66.9 per cent of total public investments while only 30.9 per cent may be attributed to the national government (Table 3).

The distribution of public sector savings in 1975-1984 followed a pattern opposite that of capital expenditures. The bulk of public sector savings (i.e. 89.2 per cent) came from the national government while 19.9 per cent was accounted for by PSEs (Table 4). Thus, the government corporate sector, specifically the non-financial PSEs, was the principal source of the fiscal deficit (Table 1).

III. FINANCING OF THE PUBLIC SECTOR DEFICIT

The public sector relied heavily on foreign loans to finance its expansionary expenditure program in the last decade. Net external borrowing financed 31.3 per cent of public investment or 57.0 per cent of the fiscal deficit in the period. Net external financing was particularly high relative to the resource gap in 1978-1980. In 1978, net foreign borrowing even exceeded the fiscal deficit (Table

TABLE 3: PERCENTAGE DISTRIBUTION OF CAPITAL EXPENDITURES OF THE PUBLIC SECTOR BY LEVEL OF GOVERNMENT, 1975-1984

Year	TOTAL	National Government	Local Government	Public Sector Enterprises			
				Total	Social Security	Non-Financial PSEs	Financial PSEs
1975	100.00	36.06	3.32	60.62	5.74	28.11	26.16
1976	100.00	14.55	1.76	83.69	8.30	50.56	24.83
1977	100.00	20.84	2.68	76.48	3.86	53.36	19.26
1978	100.00	33.18	2.65	64.17	0.17	50.15	13.84
1979	100.00	25.09	2.86	72.85	4.72	46.38	21.74
1980	100.00	40.48	2.45	57.07	-13.03	56.38	13.72
1981	100.00	33.75	1.59	64.66	7.48	43.63	13.54
1982	100.00	37.34	2.12	60.54	0.69	44.16	15.69
1983	100.00	38.18	2.47	59.35	1.41	36.20	21.73
1984	100.00	25.17	2.87	72.76	15.49	42.74	14.52
	Average	30.92	2.18	66.90	4.81	44.89	17.99

TABLE 4 : PERCENTAGE DISTRIBUTION OF SAVINGS EXPENDITURES OF THE PUBLIC SECTOR BY LEVEL OF GOVERNMENT, 1975 - 1984

Year	TOTAL	National Government	Local Government	Public Sector Enterprises			
				Total	Social Security	Non-Financial PSEs	Financial PSEs
1975	100.00	89.26	-12.71	23.45	14.48	5.81	3.16
1976	100.00	84.48	-14.16	29.68	21.82	5.02	3.56
1977	100.00	78.40	-10.63	32.24	22.85	6.69	3.50
1978	100.00	91.20	-7.78	16.58	16.11	-2.25	2.73
1979	100.00	93.37	-6.40	13.03	12.89	-2.12	2.27
1980	100.00	90.00	-5.95	15.15	13.32	-1.45	3.28
1981	100.00	84.82	-6.57	22.55	13.49	6.34	2.71
1982	100.00	78.72	-11.48	32.76	15.36	13.41	3.48
1983	100.00	86.10	-3.84	23.74	12.58	8.64	2.51
1984	100.00	84.78	-3.00	7.31	17.10	16.21	-26.00
	Average	89.21	-9.06	19.85	15.66	7.17	-2.98

5). Approximately two-thirds of public sector foreign borrowing was contributed by PSEs while the remainder was on account of the national government.

This lopsided dependence on foreign loans, a large proportion of which were obtained at commercial rates, led to the very rapid piling up of foreign debt by the public sector. In turn, the ballooning external debt put increasing pressure on the balance of payments and on the budget deficit as debt servicing requirements grew in leaps and bounds.

Only a small portion (6.7 per cent) of the deficit was monetized in 1975-1984. Money creation was on a downtrend from 1975 to 1979 but reversed its direction in 1980-1983. In 1984, net claims of monetary authorities with the government contracted, following the contractionary monetary/ fiscal policy pursued by the government in the wake of the 1983 debt-induced foreign exchange crisis.

Domestic borrowing, on the other hand, financed 36.2 per cent of the deficit in the last decade. Domestic borrowing from non-Central Bank sources was significant in the years 1976, 1981, and 1984 but negative in 1978 and 1980. This may be attributed to negative levels of net domestic borrowing by the government corporate sector in six (6) years, from 1977-1980, and from 1982-1984. This, in turn, may be explained by the burgeoning level of

TABLE 5: FINANCING OF PUBLIC SECTOR DEFICIT, 1975 - 1984
(in million pesos)

Item	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1975-1984
Deficit/(Surplus)	4001.33	16099.46	9265.92	6735.44	9183.53	7075.11	26700.62	20085.45	15865.64	23539.2	138618.3
Net Foreign Borrowing	1243.05	1805.79	6732.97	7068.73	7831.82	6382.29	7563.75	13731.41	1673.48	15124.84	79078.13
Net Domestic Borrowing											
Net Domestic Bank Credits	3984	1118	1137	67	-1416	1812	3672	7701	5136	346	23557
Monetary Authorities	2250	1205	523	57	-837	1204	3323	3343	3375	-5086	9357
Domestic Money Banks	1734	-87	614	10	-579	608	349	4358	1760	5432	14199
Net Domestic Non Bank Credits	-1225.12	13175.67	1335.95	-340.29	2773.71	-1033.18	15464.87	-1346.96	-943.84	8068.36	35983.17
Ratio to Deficit/Surplus											
Net Foreign Borrowing	31.06	11.22	72.66	104.92	85.22	89.88	28.32	68.36	73.58	64.25	57.05
Net Domestic Borrowing											
Net Domestic Bank Credits	99.55	6.94	12.27	.98	-15.41	25.61	13.75	38.34	32.36	1.47	16.99
Monetary Authorities	56.22	7.48	5.64	.84	-9.11	17.02	12.44	16.64	21.27	-21.61	6.75
Domestic Money Banks	43.32	-.54	6.63	.14	-6.3	8.59	1.31	2.7	11.09	23.08	10.24
Net Domestic Non Bank Credits	-30.61	81.8	15.06	-5.01	30.18	-14.69	57.92	-6.71	-5.95	34.28	25.96

Source: Central Bank

arrearages in the credits/loans extended by the public sector enterprises, and by the underdeveloped state of the financial markets in the country.

IV. ECONOMIC IMPACT OF THE FISCAL DEFICIT

The size of the fiscal deficit, as well as the manner by which it is financed, has widespread repercussions on the rest of the economy. For one, deficit-financing may crowd out private investments while money creation may lead to an inflationary situation. For another, external financing may result in balance of payments problems in the medium- and/or long-run.

4.1 The Fiscal Deficit and the External Public Debt and Its Servicing

Our earlier discussion shows that net external borrowings financed the bulk of the mounting deficits of the public sector. External public sector debt grew at a tremendous pace of 21.5 per cent per annum during the period 1975-1985. As a consequence, its share in total outstanding foreign debt expanded from 45.2 per cent in 1975 to 63.8 per cent in 1984 (Table 6).

External debt presents both a budget problem and a transfer problem (Goode, 1984). The public sector must generate sufficient revenues to cover the service payments.

TABLE 6: OUTSTANDING EXTERNAL DEBT, 1975-1985
(In million U.S. dollars)

Year	Total External Debt	Private Sector External Debt	Total Public Sector External Debt	Government			Monetary Institutions
				National	Local	Corporations	
Levels							
1975	4939	2705.3	2233.7	731.1	-	372.2	1130.4
1976	6768	3444.6	3323.4	814.8	8.3	1150.7	1357.6
1977	8063	4182.3	3886.7	1153.2	8.3	1691.9	1041.3
1978	10694	5323.8	5370.2	1657.3	8.3	2157.3	1555.3
1979	13352	6854.3	6497.7	1858.2	8.3	2672.6	1966.6
1980	17252	8733.2	8518.8	2385.4	8.3	3611.6	2601.5
1981	20033	9588.8	11384.2	3378.1	2.8	4382.6	3549.5
1982	24677	11281.8	13396.8	3794.8	1.9	4923.5	4676.6
1983	24816	9940.1	14875.9	4475.6	2.9	5937.6	4459.8
1984	25418	9203.7	16214.3	4698.6	2.9	7283.1	4231.7
1985	26252	10937.5	15314.5	5249.4	2.9	5946.7	4115.5
Percentage Distribution							
1975	100.00	54.77	45.22	14.80	*	7.54	22.89
1976	100.00	50.90	49.10	12.04	*	17.00	20.06
1977	100.00	51.83	48.68	14.29	*	20.97	12.90
1978	100.00	49.78	50.22	15.50	*	20.17	14.54
1979	100.00	51.34	48.66	13.92	*	20.02	14.73
1980	100.00	50.62	49.38	13.36	*	20.93	15.08
1981	100.00	45.89	54.10	16.13	*	20.90	16.99
1982	100.00	45.71	54.29	15.37	*	19.95	18.95
1983	100.00	40.06	59.94	18.04	*	23.93	17.97
1984	100.00	36.21	63.79	18.45	*	28.68	16.65
1985	100.00	41.66	58.34	20.00	*	22.65	15.68

*Less than 1 percent.

Source: Central Bank

This is possible only if loans were used in productive endeavors that pay for themselves. This essentially calls for good economic management and is a concern for both external and domestic debt management. In addition to this, the servicing of foreign debt requires a transfer of resources abroad. Thus, there is pressure to improve the current account of the balance of payments, or otherwise suffer a balance of payments crisis. To subvert this potential crisis, the country needs to pursue deflationary policies to correct the current account imbalance and/or to undertake a currency devaluation.

The pressure on current year budgets resulting from the imprudent recourse to foreign financing in earlier years is evident from the increase in the proportion of total national government expenditures devoted to debt service, (principal repayments plus interest). Accordingly, the proportion increased from 5.1 per cent to 41.4 per cent between 1975 and 1984. While these figures include servicing of domestic borrowings, the bulk must have gone to foreign debt servicing, given the large share of foreign debt in outstanding public debt. In 1984, for instance, external public debt accounted for 70.5 per cent of total public debt (Table 7).

On the other hand, the excessive reliance on external borrowing in financing the fiscal deficits in the last decade is one of the primary factors that led to the balance

TABLE 7 : OUTSTANDING PUBLIC DEBT, 1975 - 1984
(in million pesos)

Item	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Levels (in million pesos)										
INTERNAL DEBT	12384	15846	17792	20777	22461	26290	33779	44186	52881	73529
Direct	11512	13322	15505	17811	19387	22529	29210	36283	42446	63795
National Government	11414	13171	15301	17550	19098	22197	28848	35772	41830	63220
Local Government	98	151	204	261	289	332	362	431	616	375
Guaranteed Corporations	872	1724	2287	2966	3874	3761	4569	7903	10355	9934
EXTERNAL DEBT	7951	11809	16456	20769	32086	41478	55331	64627	77589	176362
Direct	4938	6210	8517	13378	20829	22569	32475	40011	48667	104210
National Government	4937	6210	8517	13378	20829	22569	32465	40001	48657	104187
Local Government	1	0	0	0	0	0	10	10	10	23
Guaranteed Corporations	3013	5599	7939	7391	11257	18909	22856	24616	28842	72152
TOTAL PUBLIC DEBT	20335	26655	34228	41546	54547	67768	89110	108733	130310	249891
GNP	114438	134282	153255	177822	210832	264532	303628	335435	378745	526300
As a percentage of GNP										
INTERNAL DEBT	10.82	11.21	11.61	11.74	10.30	9.94	11.13	13.15	13.94	13.97
Direct	10.06	9.93	10.12	10.06	8.89	8.52	9.62	10.79	11.21	12.08
National Government	9.97	9.81	9.98	9.91	8.76	8.39	9.50	10.66	11.04	12.01
Local Government	.09	.11	.13	.15	.13	.13	.12	.13	.16	.07
Guaranteed Corporations	.76	1.28	1.49	1.68	1.41	1.42	1.50	2.36	2.73	1.89
EXTERNAL DEBT	6.95	8.80	10.74	11.73	14.72	15.68	18.22	19.27	20.46	33.51
Direct	4.32	4.63	5.56	7.56	9.55	8.53	10.70	11.93	12.85	19.80
National Government	4.31	4.63	5.56	7.56	9.55	8.53	10.69	11.93	12.85	19.80
Local Government	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Guaranteed Corporations	2.63	4.17	5.18	4.18	5.16	7.15	7.53	7.34	7.62	13.71
TOTAL PUBLIC DEBT	17.77	20.01	22.35	23.47	25.82	25.62	29.35	32.42	34.41	47.48

Source: Bureau of Treasury.

of payments crisis of 1983. The country's external debt servicing capacity was continously strained in the period as the debt-service ratio (ratio of principal plus interest to merchandise and non-merchandise exports) rose from 15.5 per cent in 1975 to 28.1 per cent in 1982, and to 46.9 per cent in 1986 (Table 8).[1/]

4.2 The Fiscal Deficit, Interest Rates and Private Investment

In Section 2, we noted that a significant proportion of the fiscal deficit in the last decade was funded by domestic borrowing. Public sector domestic borrowing from domestic banks and from non-bank sources compete with the private sector in the use of domestic financial resources. Thus, increased government spending financed by domestic borrowing may crowd out private investments. In more developed economies, the process by which the private sector is crowded out is through higher interest rates. In less developed countries with financially repressed economies, private investment may be crowded out through the reduction in the quantity of rationed credit made available to private investors, rather than through the higher cost of financial resources, since interest rates are generally kept low by fiat (McKinnon, 1973; Fry, 1980 and Remolona, 1985).

1/ The debt service ratios for 1983-1985 are not reflective of the true debt burden because of the debt moratorium declared by the Philippine government in 1983.

TABLE 8 : EXTERNAL DEBT SERVICING RATIO
(in million U.S. dollars)

Year	Export Earnings Including Services (1)	Debt Servicing			Debt Servicing Ratio (2/1)
		Principal	Interest	Total (2)	
1975	3201	366	132	498	15.56
1976	3445	625	33	858	24.91
1977	4236	537	189	726	17.14
1978	4909	730	276	1006	20.49
1979	6256	761	492	1253	20.03
1980	8010	799	673	1472	18.38
1981	8618	855	903	1758	20.40
1982	8004	1052	1197	2249	28.10
1983	8132	981	930	1911	23.50
1984	8017	717	1192	1909	23.81
1985	7917	604	1111	1715	21.66
1986	8100	1900	1900	3800	46.90

Sources: Department of Economic Research - International, Central Bank of the Philippines. Management of External Debt & Investments Account Department, Central Bank of the Philippines.

In the Philippines, the 1981 financial reform has resulted in a more liberalized financial system but the allocation of credit between public and private sector still needs to be investigated, particularly for the pre-1981 period. After 1981, interest rate movements would be a more important indicator of crowding out.

The proportion of net domestic credit expansion appropriated by the public sector in financing its deficit was large in 1975, 1984 and 1985. In eight (8) years out of 11, the share of the private sector in nominal net domestic credit expansion was larger than that of the public sector. However, in 1984-1985, the net domestic credits accruing to the private sector has contracted significantly (Table 9). Thus, evidence based on credit allocation suggests that 1975, 1984 and 1985 are years when some crowding out may have occurred. Moreover, the public sector's share in real credit expansion is higher than its nominal share in the nine-year period between 1975-1983, except in 1978 and 1979 (Table 10). This is indicative of growing pressure on credit markets from the side of the public sector for the seven (7) years.

Since 1981, the government has issued Treasury bills at high rates of interest, with unprecedented high yields offered particularly in 1984 and 1985 (Table 11). Businessmen have figured this development as one of the factors that has led to low levels of private investment as

TABLE 9 : SOURCES OF CHANGE IN NET DOMESTIC CREDIT IN NOMINAL TERMS, 1975-1985

Item	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Actual Change in Levels											
NDC (Total)	8758	8420	7787	11611	16400	15653	20642	25720	29310	-4390	-10260
NDC (National Government)	2265	1537	1068	-137	17	2559	4411	7338	-1224	-2455	1031
NDC (Local Government)	-21	-147	-189	-67	-213	-184	-389	34	-443	412	-94
NDC (Gov't. Corporations)	1748	-272	258	268	-1220	-643	-438	329	6882	2389	1562
NDC (Public Sector)	3984	1118	1137	64	-1416	1812	3572	7701	5135	346	2559
NDC (Private)	4774	7302	6650	11547	17816	13841	16970	18019	24775	-4736	-12819
Percentage Distribution											
NDC (Total)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	-100.00	-100.00
NDC (National Government)	25.86	18.25	13.72	-1.18	.10	16.35	21.37	28.53	-4.09	-55.92	10.63
NDC (Local Government)	-.24	-1.75	-2.43	-.58	-1.30	-.66	-1.58	.13	-1.48	9.38	-.92
NDC (Gov't. Corporations)	19.87	-3.23	3.31	2.31	-7.44	-4.11	-2.08	1.28	22.74	54.42	15.22
NDC (Public Sector)	45.49	13.28	14.60	.55	-8.63	11.58	17.79	29.94	17.17	7.88	-24.94
NDC (Private)	54.51	86.72	85.40	99.45	108.63	88.42	82.21	70.06	82.83	-107.88	-124.94

Source of Basic Data: Central Bank of the Philippines.

TABLE IO: SOURCES OF CHANGE IN REAL NET DOMESTIC CREDIT, 1975 - 1985

Item	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Actual Change in Levels											
NDC (Total)	3778.46	2880.85	2256.10	3213.35	2838.90	1885.43	3258.97	4610.31	3504.60	-15480.82	-5855.36
NDC (National Government)	1463.91	833.69	477.51	-178.43	-149.67	750.39	1214.57	1895.82	-631.20	-1776.94	-181.33
NDC (Local Government)	15.42	-54.13	-69.38	5.94	-29.59	27.23	-54.50	48.66	-68.97	241.55	26.56
NDC (Gov't. Corporations)	1812.87	-254.85	56.99	32.73	-648.41	-291.68	-155.87	92.22	1757.21	-287.45	-18.35
NDC (Public Sector)	2491.48	524.72	465.12	-139.76	-813.67	486.00	1005.00	2036.70	857.04	-1742.84	-173.12
NDC (Private)	1287.87	2356.14	1790.98	3353.12	3658.58	599.43	2253.36	2573.61	2647.56	-13745.98	-5682.25
Percentage Distribution											
NDC (Total)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	-100.00	-100.00
NDC (National Government)	38.74	28.94	21.17	-5.55	-5.27	63.13	37.27	41.12	-23.72	-11.47	-3.10
NDC (Local Government)	.41	-1.88	-3.08	.18	-1.04	2.51	-1.67	1.06	-1.97	1.56	.45
NDC (Gov't. Corporations)	26.79	-8.85	2.53	1.02	-22.56	-26.87	-4.76	2.00	50.14	-1.34	-.31
NDC (Public Sector)	65.94	18.21	20.62	-4.35	-28.87	44.77	30.84	44.18	24.45	-11.25	-2.96
NDC (Private)	34.06	81.79	79.38	104.35	128.87	55.23	69.16	55.82	75.55	-88.75	-97.04

Source: from Table 3

TABLE II : INTEREST RATES AND PUBLIC SECTOR DEFICIT, 1975 - 1985
(in percent)

Year	a/ Inflation	b/ Nominal Interest Rate	c/ Real Interest Rate	Public Sector Deficit as a Proportion of GNP
1975	8.31	10.48	2.17	7.15
1976	9.19	10.41	1.22	15.38
1977	7.39	11.16	3.77	9.41
1978	9.21	10.95	1.74	8.32
1979	15.23	12.18	-3.05	10.00
1980	15.29	12.32	-3.27	8.21
1981	10.35	12.91	1.36	13.64
1982	8.42	14.42	5.99	9.81
1983	11.68	14.54	2.86	8.86
1984	43.87	35.38	-12.09	8.19
1985	17.55	27.05	9.5	9.68

a/
Based on GNP implicit price index, National Accounts Staff.

b/
Weighted average nominal interest rate on all maturities of Treasury Bills, Central Bank.

c/
Nominal interest rate minus inflation rate.

Source of Basic Data: Central Bank of the Philippines

well as to increased production costs in these years. Furthermore, an examination of the relative movements of real interest rates, (as measured by nominal interest rate on Treasury bills minus inflation rate) and the size of the fiscal deficit, (as measured by the ratio of the total public sector deficit to GNP) show that there is a positive relationship between these two (2) variables in four (4) (i.e. in 1981, 1983, 1984 and 1985) out of the six (6) observation points available under the liberalized regime. On the other hand, in the financially repressed period prior to 1981, such a direct correlation between the fiscal deficit and the real interest rate was observed in only two (2) (i.e. 1978 and 1980) out of five (5) years. These developments validate our *a priori* expectations on the manner by which the public sector has crowded out the private sector in the last decade. The evidence also indicate that crowding out of private sector investments has indeed taken place in 1985.

4.3 The Fiscal Deficit, Money Creation and the Price Level

The fiscal deficit is said to be monetized when the government/public sector borrows from the Central Bank (CB) to cover its deficit. Money creation takes the form of an increase in net credits of the CB to the public sector. Other things held constant, because of the CB's balance

sheet identity, CB net lending to the public sector results in an increase in the stock of high-powered money.[2/]

An increase in government spending financed by money creation leads to an increase in aggregate spending. In turn, the increased demand induces higher prices, additional output, (if over capacity is present) and a worsening of the current account as imports rise relative to exports. Because of supply bottlenecks, the output response to increased demand is usually limited. At the same time, the availability of international reserves effectively puts a cap on import expansion. Thus, inflation tends to be the more important problem associated with money creation.

Our earlier discussion of the sources of financing of the fiscal deficit indicate that money creation covered a small portion of the public sector deficit in 1975-1984. This should not mislead us, however, into believing that the impact of money creation on other economic variables is also small. Looking at the sources of change in high-powered or reserve money, we observe that monetization of the fiscal deficit accounts for a significant proportion of the total change in reserve money, particularly in 1976, 1980-1982, and 1985 (see Table 12).

2/ Government borrowing from the commercial banking system may result in net addition to the money supply if deposit money banks have excess reserves, or if the Central Bank provides them with supplemental reserves through rediscounting or the provision of loans and advances.

TABLE 12: SOURCES OF CHANGE IN RESERVE MONEY, 1976 - 1985

(in million pesos)

Item	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Changes in levels										
1. Reserve Money	944	1866	2279	2536	1563	1686	846	9879	5722	4541
2. Net Foreign Assets of the Monetary Authorities	318	2272	1555	-357	-2145	-7528	-14047	-16714	-16838	-32888
3. Net Domestic Assets of the Monetary Authorities	626	-406	724	2893	3708	9134	14893	25793	22560	37421
3.a Claims on Deposit Money Banks	-745	-29	741	2648	3913	3182	218	-5089	-3522	1150
3.b Net Claims on the Public Sector	1285	523	57	-837	1284	3323	3343	3375	-5086	9135
1. Net claims on the Nat'l. Gov't.	856	432	172	835	1678	3506	3379	982	-4235	4268
2. Net claims on other gov't.	349	91	-115	-1672	-674	-183	-36	2393	-851	4927
3.c Claims on Other Banks	513	528	642	864	729	1212	1216	2615	3132	-374
3.d Net Unclassified Assets	637	-38	1228	1851	-58	1388	3411	3221	11391	19752
3.e Net Other Items	-984	-1398	-1944	-1633	-2088	109	6705	21671	16645	7698
Percentage Distribution of Reserve Money										
1. Reserve Money	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2. Net Foreign Assets of the Monetary Authorities	33.69	121.76	68.23	-14.08	-137.24	-468.74	-1660.48	-184.18	-294.27	-724.04
3. Net Domestic Assets of the Monetary Authorities	66.31	-21.76	31.77	114.08	237.24	568.74	1760.48	284.18	394.27	824.07
3.a Claims on Deposit Money Banks	-78.92	-1.55	32.51	104.42	250.35	193.15	25.77	-56.65	-61.55	25.32
3.b Net claims on the Public Sector	127.65	28.03	2.50	-33.00	77.03	206.91	395.15	37.17	-88.89	202.49
1. Net claims on the Nat'l. Gov't.	90.68	23.15	7.55	32.93	120.15	218.31	399.41	10.82	-74.01	93.99
2. Net claims on other Gov't.	36.97	4.88	-5.05	-65.93	-43.12	-11.39	-4.26	26.36	-14.87	108.50
3.c Claims on Other Banks	54.34	28.30	28.17	34.07	46.64	75.47	143.74	28.80	54.74	-8.24
3.d Net Unclassified Assets	67.48	-1.61	53.88	72.99	-3.20	86.43	403.19	35.48	199.07	434.97
3.e Net Other Items	-104.24	-74.92	-85.30	-64.39	-133.59	6.79	792.55	238.69	290.89	169.52

Source of Basic Data: Central Bank of the Philippines.

The impact of money creation on reserve money, money supply and prices may be summarized by the following regressions based on national government data:

$$\log M_t = 6.12 + \underset{(6.47)}{.45} \log H_{NG_t} \qquad (1)$$

$$R^2 = .82$$

and

$$\log P_t = 3.36 - \underset{(-2.40)}{1.34} \log Y_t + \underset{(2.81)}{.03}\pi^e_t + \underset{(2.20)}{.80} \log (M/P)_{t-1} + \underset{(8.50)}{1.39} \log M_t \qquad (2)$$

$$R^2 = .98$$

Estimation Period: 1975 - 1985

where: M_t = money supply defined as currency in circulation plus demand deposit;

H_{NG_t} = net claims of CB on the government;

P_t = the CPI index; and

Y_t = real GNP

π^e = expected inflation rate which was estimated by minimizing the expected losses from forecast errors.[3/]

3/ Equation 2 is one of the equations in the Aghevli-Khan model of inflation and government deficits. For a more detailed discussion of this model as applied to Philippine data, refer to Appendix A. Due to data constraints, we were unable to estimate the model for the consolidated public sector.

Equation (1) suggests that a 10 per cent growth in net CB credits to national government will result in a 4.5 per cent increase in money supply. Meanwhile, equation (2) indicates that a 4.5 per cent increase in money supply would in turn result to a 6.2 = 4.5 (1.39) per cent increase in the CPI index. Furthermore, we note that between 1975 and 1983, H_{NG_t} expanded by 38.6 per cent annually. However, it has declined by 32.6 per cent in 1984, and then increased again by 48.7 percent in 1985. These indicate that money creation may have contributed significantly to inflation in the years 1976, 1980-1982 and 1985.

It is also worth noting that the change in net foreign assets of the CB from 1979 to 1985 is negative, indicative of the build-up, the explosion and the aftermath of the balance-of-payments and debt crisis of 1983. Remolona and Lamberte (1986) pointed out that the financial reforms implemented in 1981 resulted in "a shift away from holding of currency on the part of the public and from holding of reserves on the part of banks. As a consequence, increments in base money 1981 and 1982 fell far short of CB holdings to the national government... This meant that other sources of base money creation had to suffer. One such other source, CB liquidity credit to commercial banks, did decline somewhat but not nearly enough to accomodate the credit requirements of the national government. As it turned out, the entire burden of accomodation was placed on CB holdings

of international reserves". Thus, as the story goes, because the demand of the government on money creation exceeded "the willingness of the public to absorb it, household and firms find themselves holding more local currency than they desire, and this somehow find its way to an increased demand for foreign goods and/or foreign assets... Either way of getting rid of excess pesos will be reflected in the worsening of recorded current account balance and a depletion of exchange reserves". In 1983, this situation reached such an alarming proportion that a drastic devaluation became inevitable. The deflationary policies that followed, the resulting recession, and the havoc it wreaked on industry and the economy have become part of recent history.

4.4 The Impact of Inflation on the Fiscal Deficit

More recent developments in the economic literature recognize that there is a two-way relationship between money supply and inflation.

While the earlier studies emphasized the process by which changes in money supply causes inflation, later works point out that changes in the price level may induce changes in money supply. The intereaction between the government fiscal deficit and inflation is seen as the most vital factor in the interface between these two variables. It is hypothesized that inflation results in a growing fiscal

deficit, (because government expenditures respond faster to inflation than government revenues) which if financed by money creation, gives rise to increases in money supply that causes further increases in prices (Dutton 1971; Aghevli and Khan 1977).

Using national government data, the following relationships between government revenues, R, expenditures, G, real income, Y, the price level, P, money supply, M, money multiplier, m, and a residual item, E = H - G + R, where H is reserve money were estimated:[4/]

$$\log G_t = \underset{(3.70)}{9.37 + 1.34 \log Y_t} + \underset{(.11)}{.03 \log (G/P)_{t-1}} + \underset{(15.62)}{.80 \log P_t} \quad (3)$$

$$\log R = \underset{(2.86)}{3.47 + .78 (\log Y_t + \log P_t)} + \underset{(.14)}{.05 \log R_{t-1}} \quad (4)$$

and

$$\log M = \underset{(1.08)}{1.33 + .87 \log G_t} - \underset{(-.002)}{.002 \log R_t} + \underset{(1.39)}{.21 \log E_t} + \underset{(2.41)}{.88 \log m_t} \quad (5)$$

Estimation Period: 1975-1985

4/ Refer to Appendix A for details.

Our estimates of the adjustment coefficients for G and R, are 0.97 and 0.95, respectively, which confirms the Aghevli-Khan proposition that expenditures adjust faster to price changes than revenues do. However, both of these coefficients are not significantly different from unity implying that both government expenditures and revenues adjust promptly to inflation. But since our revenue data includes discretionary effects, our estimate of the adjustment coefficient for revenues tends to be biased upwards. Thus, the evidence suggests that revenues do lag behind expenditures in adjusting to inflation, and this may have resulted in a widening of the deficit as a result of inflation.

V. CONCLUSION

It is apparent from the above discussion that the right mix of financing instruments has eluded the government for the most part of the last decade. For instance, the lure of financing its expansionary expenditure program by net foreign borrowings in 1977-1982 proved to be unsustainable as the public sector deficit ballooned out of proportion in later years. On the other hand, the rate of money creation get by the government in the early eighties proved to be out of sync with other economic factors. These events have contributed to the BOP crisis in 1983 that triggered the massive devaluation in the same year. Similarly, the government has relied too much on deficit-financing in 1984-

1985, resulting in the crowding out of private investment and the jacking up of interest rates. This suggests the need to exercise prudence in the choice of means to finance the government deficit. Specifically, consistent fiscal, exchange rate, and monetary policies are required.

More important than this, however, is the need for a conservative fiscal policy. The financing in whatever fashion of a small deficit is definitely more manageable than that of a larger one. The magnitude of a given deficit, particularly a large one, oftentimes constrains policymakers to adopt a financing mix that requires abrupt movements in key economic variables that usually results in stop and go economic growth. Government expenditures in 1977-1982, while low by international standards, were high relative to government resources and the deficit figures they spawn proved to be unsustainable. This leads us to stress the importance of implementing measures to improve the resource mobilization performance of the public sector; namely: (1) improvement in tax administration and tax structure; and (2) improvement in efficiency /internal cash generation of government corporations. The latter measure is even more critical considering the gargantuan debt burden that is certain to form part of government budgets in the near future unless the government is able to avail itself of some debt relief. Needless to say, streamlining of government operations to cut down on unnecessary cost is essential.

Appendix

An Application of the Aghevli-Khan Model of Government Deficits and Inflation to the Philippines

Aghevli and Khan (1978) examined the relationship between money supply and inflation. They start with the proposition that there exists a two-way causality between money supply and inflation. They hypothesize that inflation gives rise to growing fiscal deficits, (because revenues lag behind expenditures in adjusting to price changes) which further increases money supply, (because of money creation) and consequently, induces more inflation.

They formulate the model as follows:

(i) The demand for real money balances is a function of the level of real income and the opportunity cost of holding assets in the form of money, i.e. the expected rate of inflation:

$$\log (M/P)^{D}_{t} = a_0 + a_1 \log Y_t - a_2 \pi^{e}_{t} \qquad (1)$$

where:

M = stock of nominal money balances

P = price level

Y = level of real income

π^{e} = expected rate of inflation

D = demand

The actual stock of real money balances is assumed to adjust proportionally to the difference between the demand for real money balances and the actual stock in the previous period,

$$\Delta \log (M/P_t) = \lambda [\log (M/P)^D = \log (M/P)_{t-1}]. \quad (2)$$

where λ denotes the coefficient of adjustment.

The expected rate of inflation is assumed to be generated by an adaptive expectation mechanism such that

$$\Delta\pi^e_t = [\pi_t - \pi^e_{t-1}] \quad (3)$$

where:

β = denotes the coefficient of expectations and

π_t = denotes the current rate of inflation i.e.

$\pi_t = \log P_t - \log P_{t-1}$

Substituting (1) into (2) and solving for the price level, we get

$$\log P_t = -\lambda a_0 - \lambda a_1 \log Y_t + \lambda a_2 \pi^e_t \quad (4)$$

$$- (1 - \lambda) \log (M/P)_{t-1} + \log M_t .$$

(ii) Desired real government expenditures is a function of the level of real income:

$$\log (G/P)^D_t = g_0 + g_1 \log Y_t \quad (5)$$

It is assumed that actual real expenditures adjust to the difference between desired real expenditures and actual real expenditures in the previous period, i.e.

$$\Delta \log (G/P)_t^D = \partial [\log (G/P)_t^D - \log (G/P)_{t-1}] \quad (6)$$

where ∂ is the coefficient of adjustment of government expenditures.

Substituting (5) into (6) and solving for nominal expenditures we obtain:

$$\log G_t = \partial g_0 + \partial g_1 \log Y_t + (1 - \partial) \log (G/P)_{t-1} + \log P_t, \quad (7)$$

(iii) Desired nominal revenues of the government, R, is a function of the level of nominal income:

$$\log R_t^D = t_0 + t_1 (\log Y_t + \log P_t) \quad (8)$$

Actual revenues are assumed to adjust to the difference between desired revenue and actual revenue in the previous period:

$$\Delta \log R_t = \pi [\log R_t^D - \log R_{t-1}] \quad (9)$$

where τ is the coefficient of adjustment of revenues.

Substituting (8) into (9) and solving for nominal revenues:

$$\log R_t = \tau t_0 + \tau t_1 (\log Y_t + \log P_t) + (1 - \tau) \log R_{t-1} . \quad (10)$$

(iv) The supply of money, M, is multiplicatively related to the stock of high-powered money, H, via the money multiplier, m:

$$M_t = mt\ H_t \quad (11)$$

Changes in high-powered money is the sum of changes in net claims of the CB on the government, H and changes in international reserves plus changes in CB's net claims on commercial banks and private sectors, H_{OA}, such that:

$$\Delta H_t = \Delta H_{NG_t} + \Delta H_{OA_t} \quad (12)$$

or

$$H_t = \Delta H_{NG_t} + \Delta H_{OA_t} + H_{t-1} \quad (13)$$

If it is assumed that $\Delta H_{NG} = G_t - R_t$,

then equation(13) becomes:

$$H_t = G_t - R_t + E_t \quad (14)$$

where:

$$E_t = \Delta H_{OA_t} + H_{t-1} .$$

It is assumed here that an increase in the deficit results automatically in an equal change in stock of reserve money. This is true only to the extent that the deficit is financed by borrowing from the CB, money creation. If deficits were funded by deficit financing, then this assumption is no longer valid. Aghevli and Khan points out that the scope for open market operations in LDCs is limited so that the former assumption is generally valid in these countries.

Substituting equation (14) in equation (12) we get

$$M_t = m_t (G_t - R_t + E_t) \qquad (15)$$

Equation (15) may be approximated by a relationship linear in logarithms (to make estimation more convenient) such that:

$$\log M_t = \log m_t + K_o + K_1 \log G_t - K_2 \log R_t + K_3 \log E_t \qquad (16)$$

In this system, if the price level increases (for whatever reason, this will result in an increase in both G and R. If $\tau < \partial$, i.e. if expenditures adjust faster to inflation than revenues, then the fiscal deficit will increase. This will cause money supply to rise and the price level will go up some more, etc. Thus, we obtain the situation where an inflation-induced fiscal deficit gives rise to sustained inflation and a widening deficit.

Equations (4), (7), (10) and (16) were estimated by using three-stage least squares and equation (3) was estimated by using the Nugent and Glezakos (1979) criterion of minimizing expected losses from forecasts errors using Philippine data. The structural equation estimates obtained from this exercise are as follows:

1. $$\log P_t = 3.36 - \underset{(-2.40)}{1.34} \log Y_t + \underset{(2.81)}{.03}\, \pi^e_t + \underset{(2.20)}{.80} \log (M/P)_{t-1} + \underset{(8.50)}{1.39} \log M_t$$

2. $$\log G_t = 9.37 + \underset{(3.70)}{1.34} \log Y_t + \underset{(.11)}{.03} \log (G/P)_{t-1} + \underset{(15.62)}{.80} \log P_t$$

3. $$\log R_t = 3.47 + \underset{(2.86)}{.78} (\log Y_t + \log P_t) + \underset{(.14)}{.05} \log R_{t-1}$$

4. $$\log M_t = 1.33 + \underset{(1.08)}{.87} \log G_t - \underset{(-.002)}{.002} \log R_t + \underset{(1.39)}{.21} \log E_t + \underset{(2.41)}{.88} \log m_t$$

5. $$\Delta\pi^e_t = .4\, [\pi_t - \pi^e_{t-1}]$$

The effect of income on revenues and expenditures in the short-run is positive and significant. The adjustment coefficient for expenditures and revenues are 0.97 and 0.95, respectively, and both are not significantly different from unity. This implies that both variables adjust almost automatically to keep pace with inflation. Since revenue data includes discretionary effects, our estimate of τ may be biased upwards. Consequently, it is likely that $\tau < \partial$ for the Philippines, implying that revenues lag behind expenditures in adjusting to inflation.

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