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BALANCE OF PAYMENTS, OUTPUT, AND THE IMF

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The paper presents a historical sketch of the various arrangements between the Philippine government and the IMF. It then tries to quantify the output effects of the IMF's financial programming techniques using a Lucas-Barro type output equation. The model's estimate of the decline in output for 1984 and 1985 arising from unanticipated money alone is 7 per cent. The actual decline was 9 per cent.

1. Introduction

The Philippines has had a long history of chronic deficits in its balance of payments. As a result, the economy faced, time and again, tight liquidity constraints. To ease the constraints, it had to rely on an expansion of its drawing rights from the IMF. When the deficits persisted, the Philippines was forced to negotiate high-conditionality stand-by arrangements (SBA) and it had to contend with the Fund's financial programming techniques.

This paper is focused on the various arrangements worked out by the government with the IMF. A historical sketch is first presented, in an attempt to bring out some of the links between the policy adjustments actually carried out by the government, and well-known conditionality practices under the IMF's stand-by arrangements. The study then tries to quantify the output effect of the IMF's financial programming techniques. These techniques rely heavily on the insights yielded by a monetary approach to the balance-of-payments, stressing aggregate demand management to correct internal and external imbalances. Given this, we find a Lucas-Barro reduced-form output equation useful for our purpose. Using this approach, the estimated drop in output in 1984 and 1985 is about 7 per cent; the actual decline was about 9 per cent.

This paper is organized as follows: Section 2 sketches the various arrangements with the IMF. Section 3 examines the output effect of the Fund's financial programming techniques.

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2. Stand-by Arrangements

The nature of adjustments under IMF arrangements is monetary, designed primarily to correct balance of payments problems. IMF discussions with client countries revolve around the improvement of the country's balance of payments in the context of the IMF's mandate: elimination of exchange controls, the restoration of exchange rate stability and the reconciliation of internal and external policies. Within this frame we review devaluation adjustments and liberalization of trade payments, including, timing and sequencing. The IMF has always been concerned with short-run disturbances to the external accounts. The evaluation of stand-by arrangements, whereby countries can have access to supplementary reserves above drawing rights, increases the degree of IMF consultations and associated adjustment policies.

We begin with an account of the stand-by agreements that the Philippines has had with the IMF since 1945. We trace these in the context of new windows that were set up in response to some external shocks, such as, price fluctuations of primary exports, crude-oil price increase, etc.

Next we describe devaluation experiences. Two dimensions are examined. We look at the possible association of devaluation with market pressures on the exchange rates, and the extent to which the stand-by agreements facilitates the occurrence of devaluation. The other is the degree to which an agreement bears on foreign-exchange reserves whose level may affect the decision to devalue.

Then the country's trade liberalization experiences are reviewed in light of their timing with IMF consultations, stand-by agreements and other policy adjustments. Our interest here is on the trade accounts, with little to say about capital-account transactions.

A. Stand-by Agreements of the Philippines

When the foreign exchange needed by a country to ease serious liquidity constraints exceeds its drawing rights, the IMF's appropriate facility is a stand-by agreement. An SBA raises the amount that can be drawn but the duration is still at the normal period of one year. Depending on the tranche provided, consultations may be initiated to discuss policy measures designed to improve a country's payments position, including, possible changes in exchange parities.

Table 1 — Stand-By Arrangements with the IMF

(million SDR)

	Inception Date	Expiration Date	Amount	Drawn	Quota
First	62-Apr. 12	63-Apr. 11	40.40	—	75
Second	63-Apr. 12	64-Apr. 11	40.40	--	75
Third	64-Apr. 12	65-Apr. 11	40.40	—	75
Fourth	65-Apr. 12	66-Apr. 11	40.40	—	75
Fifth	66-Apr.12	67-Jan. 4	26.70	—	110
Sixth	67-Jan. 5	68-Jan. 4	55.00	55.00	110
Seventh	68-Mar. 27	69-Mar. 26	27.50	27.50	110
Eighth	70-Feb. 20	71-Feb. 19	27.50	27.50	155
Ninth	71-Mar. 16	72-Mar. 15	45.00	35.00	155
Tenth	72-May 11	73-May 10	45.00	35.00	155
Eleventh	73-May 16	74-May 15	45.00	—	155
Twelfth	74-July 16	75-May 31	38.75	38.75	155
Thirteenth	75-May 31	76-Apr. 1	29.06	29.06	155
Fourteenth (EFF)	76-Apr. 2	79-Apr. 1	217.00	217.00	155
Fifteenth (SFF)	79-June 11	79-Dec. 31	105.00	91.25	210
Sixteenth (SFF)	80-Feb. 27	81-Dec. 31	410.00	410.00	315
Seventeenth	83-Mar. 25	84-Mar. 28	503.00	100.00	440
Eighteenth	84-Dec. 14	86-June 13	615.00	403.00	—

Source: International Monetary Fund, *International Financial Statistics Supplements.*
CB Review (October 1982).
Philippine Financial System *(IBON Facts and Figures,* 1983).

The Philippines has had continuing transactions with the IMF since 1945. Formal stand-by agreements however were entered into beginning only in 1962. But from that time on, yearly agreements were made except in 1969. Table 1 shows the stand-by agreements with the IMF from 1962 until the one that was cancelled after the February 1986 revolution. The amount of the SBAs, the amounts drawn, and the country quotas are likewise shown.

The quota, as a secondary source of foreign exchange reserves, has not been adequate to support import requirements. In fact, there were instances when only a month's imports could be supported. In 1950, monthly imports averaged $38.7 million while the quota was set at $15 million. In 1962, however, average monthly imports of $64.8 million were only about 86 per cent of the $75 million quota. This further improved in 1970 when a month's import amounted to 80 per cent of the quota. After 1966, monthly imports again exceeded the quotas.

Of the 18 SBAs, 6 were not utilized — no amount was drawn rom the agreed arrangements. Of the remaining 12, only in 5 cases vere the amounts drawn less than the agreed amounts.

Except for a 3-year extended facility in 1976, all other SBAs vere for a one-year period or less. It was after the 14th and 15th BAs that the amounts drawn were in excess of the country's quota, sing a combination of other tranche facilities.

The Fund opened temporary facilities to accommodate addi- ional reserve needs; this was done when permanent facilities through regular quotas) were inadequate. For example, an oil mport window was set up in 1974 and 1975 to ease balance of pay- nents difficulties brought about by the oil crisis. This facility mounted to 75 per cent of quota. The oil facility purchases of the Philippines in 1976 of $152 M SDR was 98.1 per cent of quota but hey fell below limits in 1978 when the quota was increased. A sup- plementary financing facility was also established in 1979 to support members with balance of payments difficulties that were large in relation to Fund quotas, available up to 140 per cent of quota in conjunction with SBA or Extended Fund Facility (EFF). Then an enlarged access was set up in 1981, also under SBA or EFF up to 150 per cent of quota under one-year arrangement or 450 per cent of quota over 3 years.

What are fairly apparent from the stand-by agreements of the Philippines with the IMF are their short-term nature in accordance with Fund principles, the inadequacy of the quotas relative to the needs for adequate secondary reserves (and in the context of what the drawing rights of Fund members are), and the sustained utiliza- tion of SBAs especially in the late seventies.

Normally, policy adjustments in the balance of payments accounts are instituted as a condition for IMF stand-by agreements. In particular, cumulative purchases and repurchases, and Fund cur- rency holdings define the scope of an SBA, including, the degree to which drawing rights can be exceeded.

B. Devaluation Experiences

Since the fixing of the nominal exchange rate at ₱2 to US$1 in the fifties, there have been at least six major nominal exchange-rate adjustments. Four of these adjustments occurred between 1983 and 1984. Table 2 shows the dates of the adjustments.

Table 2 — Major Changes in Par Value
(pesos per US dollar)

January	1962	3.95
February	1970	6.45
June	1983	11.00
October	1983	14.00
June	1984	18.00
October	1984	20.00

Source: IMF, *International Financial Statistics* (various issues).

The January 1962 devaluation was part of a sweeping decontrol program instituted by the Macapagal administration. Although Macapagal himself declared that a mission had earlier been sent to the US to secure commitment of funds to support decontrol, it was doubtful whether the IMF had earlier been consulted. For one, the devaluation appeared to be an acceleration of the earlier Garcia-administration's 4-point decontrol program started in April, 1960. Secondly, there were more urgent political reasons for the devaluation: the need to rid government of graft and corruption associated with controls and the demand from exporters for better returns. Thirdly, the stand-by agreement came three months after devaluation. Finally, IMF currency holdings as per cent of quota fell from 175 per cent in 1958 to 87.2 per cent in 1961, partly from an increase in the quota itself in 1959 and 1960, and from repurchases during the same years.

The ratio of the black market exchange rates to official nominal rates also fell from 1.07 to 0.99 after devaluation. In the three months following the agreement the ratio stabilized at 1.00, while the real effective exchange rate remained at about 120 points from a peak of 221 in August 1961.

Another major devaluation took place in February 1970. Coincidentally or deliberately, the SBA took effect the day before the actual announcement of the exchange rate change on February 21. The question is whether this adjustment was conditional to the agreement with the IMF.

It may be recalled that seven previous SBAs were arranged since 1962, and in the last two the amount agreed upon was fully drawn down. Moreover the SBA associated with the 1970 devaluation came after a lapse of almost a year.

The transactions subsequent to the 1970 SBA offer an interesting observation. In 1966, the country "cleaned up" its Fund accounts by fulfilling the required reserve for its quota. The Fund's currency holdings settled at 75 per cent after an increase in quota that year. By 1967, when the trade deficit reached $224 million, the country drew on its gold tranche of $27.5 million (Baldwin 1975, p. 67). A widening of the trade deficit in 1968 led to purchases of another 50 per cent of quota (the first and second credit tranches), bringing Fund holdings to 150 per cent of quota in that year.

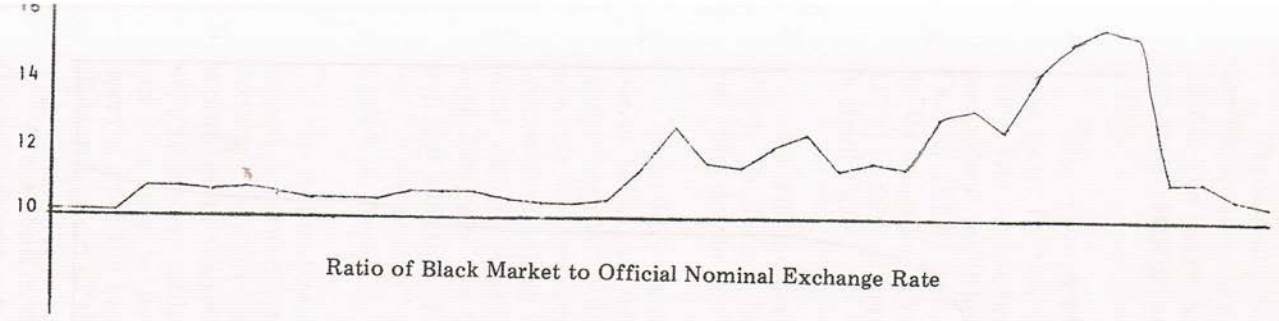
Pressure on the exchange rate began to manifest itself with a decline in international reserves during the last quarter of 1968 and the first two quarters of 1969 when they fell below two-month imports. By the end of 1969 the reserves were only good for less than one-month imports. The ratio of the black market exchange rate to the official rate pegged in 1962 was 1.58 by January 1970.

The availability of stand-by funds through the SBA increases the country's international reserves which relieves exchange-rate pressures. Yet the real effective exchange rate may not change at all.

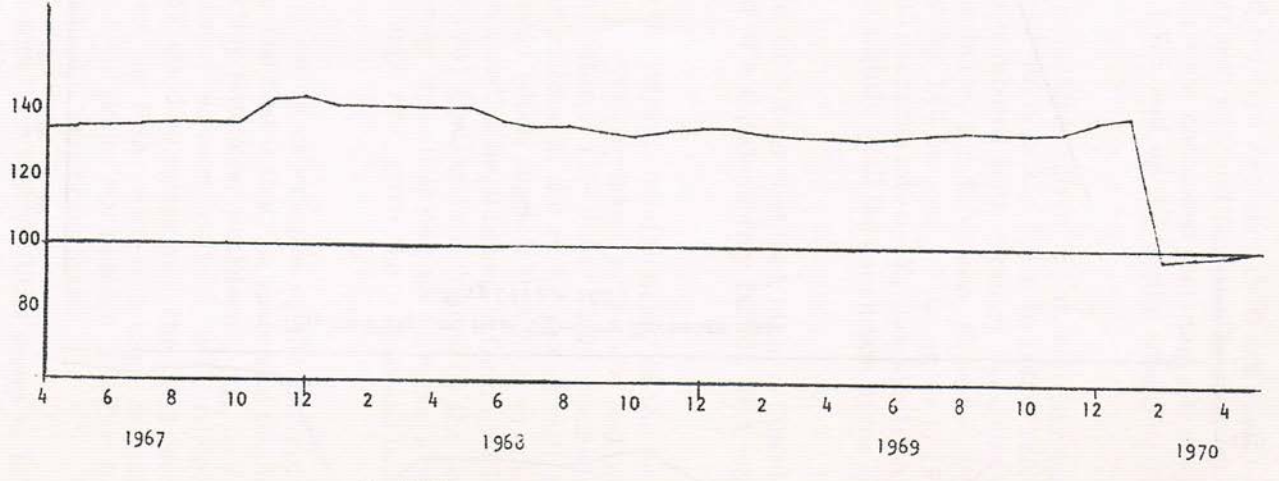
Figure 1 traces the path of the ratio of black market to official nominal exchange rates and the (import-weighted) real effective exchange rates from April 1967 to May 1970. The figure shows a contrast between a fairly constant overvaluation of the peso throughout the period and a market trend to a pressure on the exchange rate a few months after the 1968-69 SBA expired in March 1969. At the end of 1969, the exchange rate ratio peaked which then required the discrete movement in the exchange rate.

What this analysis shows is that the seventh SBA provided a relief to exchange-rate pressure (itself arising from a deteriorating trade account) but only temporarily as the pressure resurfaced six months after.

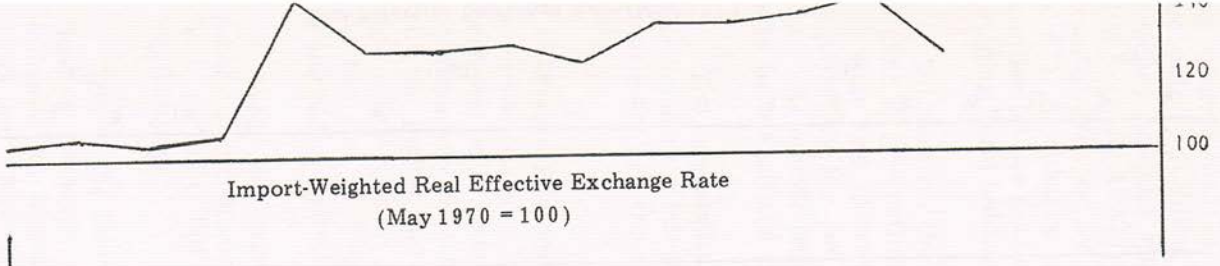
Since the February 1970 adjustment policy was in the form of floating exchange rate rather than a change in parity rate, there followed no formal devaluations until the consecutive changes in 1983 and 1984. This does not mean there were no depreciation of the exchange rate. Figure 2 shows the time pattern of the yearly average nominal exchange rate from 1970 to 1983 showing a smooth depreciation until the sharp increases in 1983 and 1984. Again the



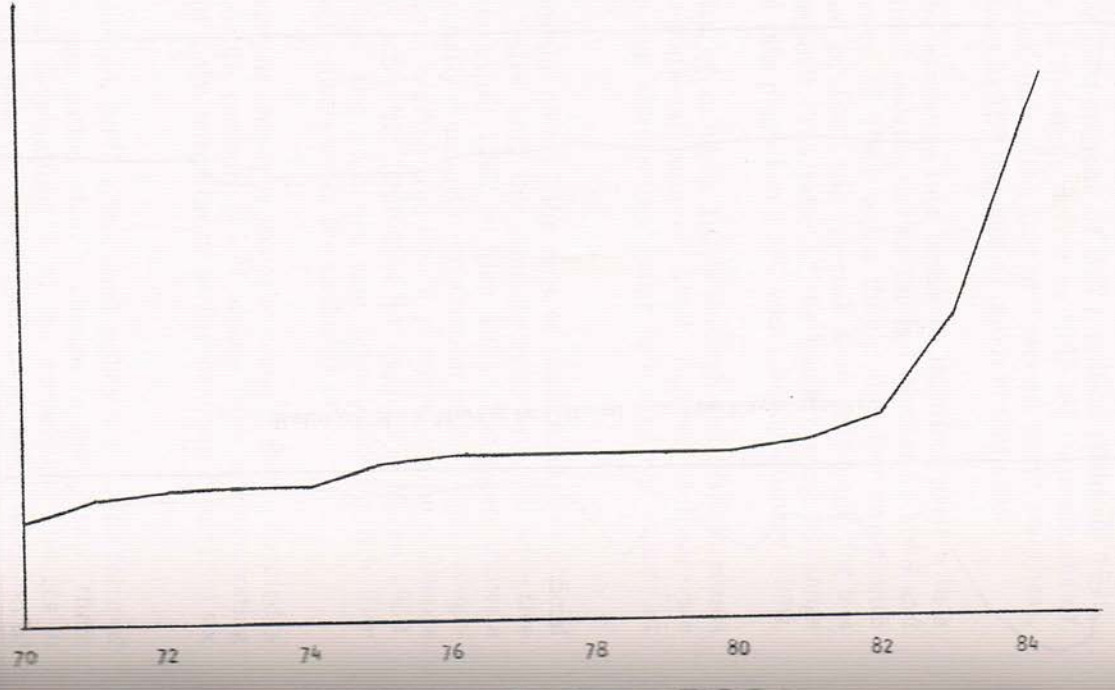
Ratio of Black Market to Official Nominal Exchange Rate



Real Effective Exchange Rate (May 1970 = 100)



Import-Weighted Real Effective Exchange Rate
(May 1970 = 100)



Nominal Exchange Rate (Pesos per US Dollar)

pattern of the real effective exchange rate (upper half of Figure 2) also shows the systematic peso overvaluation after 1973.

Throughout the period between February 1970 and June 1983, the Philippines continued to avail of Fund facilities through various SBAs. Ten more agreements were concluded including a three-year extended arrangement in 1976 and an 18-month arrangement in 1984.

The 1973 SBA was not utilized, given the commodity boom that year. By this time, Fund holdings had fallen to below 150 per cent. The succeeding SBAs combined both ordinary resources and temporary facilities. For instance, the three-year Extended Fund Facility (EFF) was arranged for 140 per cent of the quota in 1976. At its inception, the nominal exchange rate hardly moved after April 1976; in fact, it appreciated slightly until the conclusion of the EFF in April 1979.

An average depreciation of 5.2 per cent took place in 1981 (see Figure 2) during the period of a supplementary facility SBA which was fully drawn down.

It is difficult to judge the implicit conditionality to the seventeenth SBA in 1983 since it was overtaken by events that were predominantly political in nature. The June 1983 devaluation however was preceded by an increase in the exchange-rate ratio and peak overvaluation of the peso which suggests that such an adjustment was anticipated. The succeeding devaluations in October 1983, June 1984 and the October 1984 floating were clouded by the noisy political situation. But one may argue that perhaps there was a need for "overshooting" the exchange rate, given the widespread uncertainties at the time.

To summarize, the devaluation experiences of the Philippines suggest a number of points. The first is that the successful devaluations in the sense of correcting structural weaknesses, e.g., lack of export competitiveness, current account deficits, etc., occurred without a preconditional IMF stand-by agreement. The 1962 decontrol is a case in point where the SBAs were seen more as buffer reserves after the basic adjustment policy was pursued. The first four SBAs in support of that devaluation were never drawn.

The second is that the access to SBA facilities seems to have delayed adjustment policies from being implemented since the arrangements eased exchange rate pressures. The 1970 devaluation

and subsequent floating which was supported by the Eighth SBA was preceded by two earlier agreements which effectively postponed the needed adjustment.

The third is that SBAs — because of the limited scope of adjustment measures, such as, devaluation — are not capable of correcting structural disturbances. If peso overvaluation, for instance, arises from trade restrictions, a devaluation is not the answer.

Finally, if the source of speculative attacks on the currency is non-economic in nature, a devaluation alone would have limited effects. Something like this may have been at work in 1983 and 1984, given the political shocks from the Aquino assassination.

3. Output Effects of Financial Programming Techniques

We examine here the short-run output effects of financial programming techniques applied by the IMF to a client country with balance of payments problem. The empirical work is set during the 1983 balance of payments crisis in the Philippines.

The criticism against the Fund's techniques is usually leveled at the disinflation path prescribed. To curb inflation, a sudden break on money growth is normally applied, ushering in a recession which most LDCs find difficult to overcome.

To quantify the output effects of these monetary adjustments, we exploit the findings from an empirical model which yields estimates of the output effects of unanticipated money growth (see Canlas, 1986).

The above mentioned model is rooted in some theoretical models associated with the new classical economists, also known as the rational expectation school. This group argues that, with limited information, only the unanticipated or surprise part of money growth affects output. The systematic or predictable component of money growth has neutral output effects (see Lucas, 1972; Sargent and Wallace, 1975).

We find the propositions yielded by these models relevant to the investigation on hand. For one, IMF financial programming techniques usually call for a dramatic drop in the growth of net domestic credit, which takes firms and businesses by surprise. The suddenly induced disinflation renders the price and wage vectors facing the firms inappropriate. Finding themselves temporarily

stuck with high real wage rates, firms begin laying off workers and cutting down production.

A. Financial Programming Techniques

A simple version of the financial programming techniques applied by the IMF to client countries with balance-of-payments problem is presented here. We start with some basic identities that relate the monetary account with the external account.

Consider first the balance sheet of the Central Bank as shown in Table 3.

Table 3 — Balance Sheet of the Central Bank

Assets	Liabilities
Net foreign assets, R	Reserve money, H
Net domestic credit, DC	

The Central Bank's net foreign assets, R, consist of net foreign investments, gold, special drawing rights, and foreign exchange holdings net of liabilities to foreigners.

Net domestic credit, DC, consists of loans to the national and local governments, and to banks and other financial institutions.

Reserve money, H, consists of currency and bank reserves deposited with the Central Bank.

From the balance-sheet identity, we have:

$$(1) \quad R + DC \equiv H.$$

From identity (1), we get a relation whereby the change in R is equal to the change in H less the change in DC:

$$(2) \quad \Delta R \equiv \Delta H - \Delta DC.$$

The change in net foreign reserve assets, ΔR, corresponds to ıe balance of payments. It is identically equal to the difference ɛtween the change in reserve money and the rate of domestic ·edit creation.

To transform identity (2) into a monetary theory of the balance ɔf payments, the following functions are postulated: a stable demand ·or money, stable money supply, and an equilibrium condition which :lears the money market.

The demand for money function is taken as follows:

$$(3) \quad M/P = L(R, Y) \qquad (-)\ (+)$$

where M/P is real cash balance, R is interest rate, and Y is income. The effects of R and Y on M/P are indicated by the signs below.

Let money supply be fixed at M^s. Assuming the money market clears, we get:

$$(4) \quad M^s/P = L(R, Y). \qquad (-)\ (+)$$

Taking natural logarithms of eq. (4) and differentiating with respect to time we get:

$$(5) \quad \dot{D}(ln\, M^s) = \dot{D}\left\{ln\, L\,(R,Y)\right\} + \dot{D}\,(ln\, P).$$

The left-hand side of eq. (5) is the growth rate of nominal money. It is equal to the growth rate of the demand for money plus the inflation rate. The growth rate for nominal money is determined by assuming an output growth rate and an inflation rate.

We know that M^s is related to reserve money, H, via a money multiplier, m:

$$(6) \quad M^s = mH$$

If the multiplier is a constant then the growth rate of H is equal to the growth rate of M^s. The growth rate of H is determined given the growth rate of M^s.

We can now sketch the financial programming techniques used by the IMF by using (2). We first find out the amount of external financing that is available. This is given by ΔR. The change in reserve money ΔH is determined from equations (5) and (6). We obtain ΔDC as a residual:

(7) $\Delta DC \equiv \Delta H - \Delta R.$

ΔDC is the expansion in domestic credit compatible with the constraint posed by ΔR and the projection for ΔH.

The external balance target can be prejudiced if the government incurs large budget deficits which the Central Bank finances by extending credit to the government. Excessive lending to the banking sector can also prejudice the external target.

B. Background

The fiscal and monetary policies that were conducted after the declaration of martial law in 1972 help explain the balance of payments crisis in 1983.

Under martial law, the institutional arrangement governing conduct of macroeconomic policies changed. The President exercised effective control over both the fiscal and monetary authorities.

Congress was supposed to be the fiscal authority, with powers over the level of government expenditures. The President, however, was able to dictate his wishes upon a rubber-stamp Congress, effectively making him the fiscal authority.

The Monetary Board or the Central Bank is the monetary authority, in charge of policies affecting the money supply. The President, however, packed the Monetary Board with his cabinet ministers and as a result strongly influenced the Board.

After the oil price shock of 1973-74, the government engaged in expansionary fiscal and monetary policies to ward off the likelihood of a recession. Chronic deficits in the government budget resulted. These deficits were financed either through money creation, or borrowing from abroad and the domestic financial market.

From 1974 to 1980, money supply grew at an average of 18

ıer cent per year. This was a sharp departure from the average ıoney growth rate of 10 per cent in 1965-1971.

The expansionary monetary policy was carried out under a ixed exchange rate. This temporarily lowered the nominal interest ate on domestic securities. As a result capital flight was encouraged. ;ince the economy is linked to capital markets abroad, people vith excess peso cash balances exchanged them for dollars which vere subsequently used to purchase securities abroad. These foreign ıecurities had yields higher than yields from domestic securities.

The outflow of foreign exchange and persistent deficits in the ;urrent-account of the balance of payments conspired to bring in ;he 1983 crisis. In October 1983 the Philippine government exper-enced a serious balance of payments crisis. Foreign exchange re-;erves of the Central Bank reached critical levels forcing the govern-nent to declare a moratorium on repayments of its external debts. The government had to go to the IMF for a new stand-by credit ırrangement.

To avail of a new stand-by arrangement, the government con-tended with IMF conditionality practices. In line with the Fund's financial programming techniques, ceilings were imposed on domes-tic credit creation by the Central Bank. Limits were set on the Central Bank's net lending to the national government and to two major government financial institutions — the Philippine National Bank and the Development Bank of the Philippines.

As a result of the restrictions on domestic credit creation, money supply *(M1)* contracted in 1984 and 1985. The figures for *M1* are shown in Table 4. We note that *M1* declined by 5.2 per cent in 1984 and by 4.7 per cent in 1985.

Table 4 — End-Year Money Supply (in million pesos)

Year	M1	Percentage Change
1983	32,489	
1984	30,796	(5.2)
1985	29,347	(4.7)

Source: *CB Review* (various issues).

Output behaved in a manner quite similar to the behavior of money; GNP declined by 5.5 per cent in 1984 and by 3.95 per cent in 1985.

Can the output contraction be attributed to the monetary adjustment? If so, how much of the total output decline can be assigned to money contraction?

C. Output Effects and Money Growth

To study the output effects of monetary adjustments arising from the IMF's financial programming techniques, we find models stressing the role of unanticipated component of money growth useful. These models possess theoretical coherence not shared by others in the sense of yielding propositions that are derived from utility-maximizing and profit-maximizing behavior of households and firms under an imperfect-information setting. They yield equilibrium prices and quantities which exhibit a systematic relation between nominal and real variables. It is shown for example, that only the unanticipated part of money growth affects output; the systematic component of money growth is neutral on output.

As an example, Robert Lucas (1972, 1973) has constructed a theoretical model of an economy where suppliers of a single homogeneous good are located in spatially-separated markets and where no trading among suppliers takes place. These suppliers are rational in the sense that their decisions depend only on relative prices. However, imperfect information leads them to confuse the general price level for relative prices.

We have tested for the Philippines the hypothesis that only the unanticipated part of money growth affects output (Canlas, 1986). The analysis was carried out in two stages, following an econometric procedure used by Robert Barro (1977, 1978).

In the first stage, we estimated a simple money growth equation. The actual money supply was decomposed into its anticipated and unanticipated components. Using annual observations from 1950-1983, we obtained the following money-growth equation:

$$(1)\quad DM_t = \underset{(2.45)}{0.004t}$$

$$\bar{R}^2 = 0.147 \qquad s.e. = 0.07 \qquad F = 6.0 \qquad D.W. = 2.18$$

M_t is the growth rate of money *(M1)*. In other words $DM_t = ln$ $_t - ln\ M_{t-1}$ where t is time period. $\bar{R}^2$ is the coefficient of determination, *s.e.* the error of the estimate. The number in parenthesis a t-ratio.

The anticipated part of money growth is the predicted value $\hat{M}_t$ from eq. (1), while the unanticipated part is the residual, M_t. That is $RM_t = DM_t - D\hat{M}_t$.

The next stage of the analysis involved estimating an output growth equation and testing whether or not unanticipated money affected output.

2) $$DY_t = 0.074 + .001t + .14RM_t + .147RM_{t-1}$$
$$(4.03) \quad (3.09) \quad (3.51)$$
$$+ .085\ RM_{t-2} - .658DY_{t-1} - .07DN_t$$
$$(2.01) \quad (-3.74) \quad (-1.71)$$
$$- .015DC_t + .032\ DPX_t$$
$$(-.59) \quad (1.51)$$

$\bar{r}^2 = .58$ *s.e.* = .009 $F = 5.17$ *D.W.* = 2.36

where Y is real gross domestic product, $DY_t = lnY_t - ln\ Y_{t-1}$, t is time, RM_t is the residual or unanticipated money, N is currency in circulation, $DN_t = ln\ N_t - ln\ N_{t-1}$, C is domestic credit, $DC_t = ln\ C_t - ln\ C_{t-1}$. PX is the ratio of export price to import price and $DPX_t = ln\ PX_t - ln\ PX_{t-1}$.

To quantify the output effect of unanticipated money brought about by the restrictions on net domestic credit, we make use of equations (1) and (2).

From eq. (1) we get the predicted money growth, $D\hat{M}_t$. Subtracting the predicted from actual money growth, DM_t, we get the unanticipated money or the residuals RM_t. These are shown in Table 5 below.

The output effects of money shocks or unanticipated money, taken alone, can be estimated from eq. (2). For 1984, this is given by:

Table 5 — Money Supply (M1) and Unanticipated Money

Year	M1 (million pesos) (1)	DM_t(%) (2)	DM_{t-1} (%) (3)	RM_t(%) (2) — (3)
1981	23,524			
1982	23,524	0	18.2	(18.2)
1983	32,489	38.1	18.6	19.5
1984	30,796	(5.2)	19.0	(24.2)
1985	29,347	(4.7)	19.4	(24.1)

Source: *CB Review* (various issues).

$$(3)\quad DY_{1984} = .14\,RM_{1984} + .147\,RM_{1983} + .085\,RM_{1982}$$

Substituting the values for RM_t from Table 5, we get DY_{1984} = — 2.06 per cent. If money shocks alone were involved, about 2 per cent drop in output growth was implied.

For 1985, the output effect is given by:

$$(4)\quad DY_{1985} = .14\,RM_{1985} + .147\,RM_{1984} + .085\,RM_{1983}$$

Substituting RM_t in (4) we get −5.27 per cent. For 1985, if money shocks were all that mattered, about 5 per cent drop in output was to be expected. The money shock effects were weaker in 1984 than in 1985.

The contemporaneous effects of money shocks can be estimated by substituting only RM_{1984} in eq. (2) to get the effect on output for 1984. This yields — 3.4 per cent. For 1985, the corresponding output effect is also — 3.4 per cent.

D. Concluding Remarks

The disinflation policy arising from the IMF's financial programming techniques helps explain a large part of the recession in 1984 and 1985. The sudden decline in the money supply growth brought down the inflation rate but it likewise caused a deep recession.

The evidence seems to support the notion that a rapid increase or decline in the money growth always brings in undesirable business fluctuations. From a policy standpoint, some attention needs to be paid to having predictable rules for money growth to minimize unwanted output fluctuations arising from erratic monetary policy.

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