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Amalgamating Central Bank and Fiscal Deficits

by David Robinson and Peter Stella */

Authorized for Distribution by Mario I. Blejer

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Abstract

If central banks generate profits and turn the residual, after addition to reserves, to the treasury, marginal changes in bank profitability directly affect the central government's fiscal deficit. However, if central banks generate losses that are not funded by the treasury, marginal changes will not affect the fiscal deficit. In addition, quasi-fiscal lending by central banks which can involve a large implicit subsidy, does not usually affect bank profitability immediately, although net lending by government is included in the conventional definition of expenditure. Under these circumstances, adjustments to the conventional fiscal deficit measure are necessary.

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I. Introduction

Conventional measures of a country's fiscal situation, and perhaps particularly measures of budgetary imbalances, do not always accurately capture the economic realities of fiscal policy. One reason for this--the budgetary effect of high interest rates incorporating an inflationary expectation component--has recently been examined in Tanzi, Blejer, and Teijeiro (1987). This paper, in contrast, is concerned with the problems that arise in interpreting fiscal data when central banks experience deficits. Though rarely seen in developed economies, significant central bank deficits are not uncommon in less developed countries. As shown in Table 1, such deficits have been experienced in countries with relatively sophisticated financial markets and have varied substantially year by year.

Although in many cases the roots and macroeconomic effects of these deficits seem similar to those of fiscal deficits run by the central government, the question as to how they should be treated is currently being debated. ^{1/} The aim of this paper is to argue that some central bank activities are fully or partly fiscal in nature, and draw conclusions with respect to their proper analytical treatment.

The paper begins with a discussion of the nature of central banks and the reasons why they are traditionally outside government budgets. It then draws a distinction between "purely monetary" activities--broadly speaking, traditional central bank activities undertaken to further the aims of monetary policy--and "quasi-fiscal" activities--those which are not specifically related to monetary policy and would, in many countries, be undertaken by the central government. It is argued that activities deemed "quasi-fiscal" should be included in most measures of government activity. Several of these activities that are especially relevant are then discussed in some detail.

At the outset, two points should be stressed. First, as is perhaps obvious, the impact of a particular central bank's activities on the central government accounts depends very much on the accounting system in the individual country. It is not the intention in this paper to provide detailed guidance on how accounts should be amalgamated in every conceivable set of circumstances. Rather, using a stylized accounting system as an example, an attempt is made to examine the underlying principles involved, which can then be applied as appropriate.

Second, in discussing fiscal deficits, one must choose a particular deficit definition. To borrow from Tanzi, Blejer, and Teijeiro (1987):

^{1/} Various writers have recently analyzed the phenomenon of central bank quasi-fiscal deficits in the context of specific countries. See Onandi and Viana (1987), Reyes (1987), and Rodríguez (1987). Piekarz (1987) looks at the issue more generally from the Argentine perspective.

Table 1. Central Bank Losses in Selected Countries 1/

	1982	1983	1984	1985	1986
	(In percent of GDP)				
Argentina <u>2/</u>	...	-0.9	-2.5	-2.2	-1.6
Costa Rica <u>3/</u>	-5.6	-4.9	-4.3	-5.3	-3.8
Philippines <u>4/</u>	...	-3.6	-5.2	-2.6	-2.8
Uruguay <u>5/</u>	-4.2	-7.6	-4.2	-3.4	-4.0

1/ These estimates are based on various definitions of the concept of central bank losses, and thus are not fully comparable. They are intended only to indicate the potential size of central bank losses.

2/ Piekarz (1987). Staff estimate for 1983.

3/ Rodríguez (1987). 1986 is preliminary.

4/ Staff estimates. Percent of GNP.

5/ Onandi and Viana (1987). Central bank deficit plus transfers from the central bank to the mortgage bank.

"Fiscal deficits, as conventionally defined on a cash basis, measure the difference between total government cash outlays, including interest outlays, but excluding amortization payments on the outstanding stock of public debt, and total cash receipts, including tax and nontax revenue and grants but excluding borrowing proceeds In this manner, fiscal deficits reflect the gap to be covered by net government borrowing, including direct borrowing from the central bank." 1/

This is the basic definition adopted in the paper.

To summarize, at the outset, the conclusions of the paper: central bank losses should be incorporated in measures of the fiscal deficit. However, not all central bank activities affect the profit and loss account. Those other central bank quasi-fiscal activities whose impact is not already included in the central bank profit and loss statement should be examined by the analyst to determine whether they should also be incorporated. Perhaps most prominent among these latter activities is central bank quasi-fiscal lending. It is not proposed, however, that central bank accounting be done on a cash basis, i.e., on the same basis as the fiscal accounts. Therefore, it should be recognized that the resultant deficit measure is likely to be a combination of cash and noncash elements.

II. The Role of Central Banks

Central banks, as a general rule, operate outside the direct control of central governments. Behind this separation are usually historical and institutional factors. Though it is clear why the operational activities of central banks are carried out in a separate institution, it is less clear why the determination of policy is similarly separate. While the degree of real policy independence varies widely across central banks, the reason behind the persistence of at least a show of independence could be a recognition that monetary policy should be insulated from the vagaries of politics. Nevertheless, this does not logically preclude an accounting amalgamation for analytical purposes such as is proposed here.

Although almost all central bank activities are quasi-fiscal in the sense that they have at least an indirect impact on the government finances (as is also true for public sector entities), this does not warrant the claim that all central bank activities should be treated in a fashion identical to fiscal activities. Central bank and fiscal deficits should be amalgamated for certain analytical purposes, but that does not imply central bank accounts should be done on the same basis as fiscal accounts. For this reason, in this section a distinction is

1/ For a complete discussion see IMF, Manual on Government Finance Statistics (1986).

drawn between "monetary" and "quasi-fiscal" as a prelude to the argument that they be treated in a somewhat different fashion.

Central banks undertake a wide variety of activities. Some, such as open market operations, can be considered purely monetary, and in almost every country would be undertaken by the central bank. They represent, in part, switches in the asset portfolios of the government and the private sector. Others--for instance, the provision of subsidized credit to particular sectors, or the funding of development schemes--are, on the other hand, activities that in many countries would be undertaken directly by the agencies in the central government. In these cases, it may be difficult to see why an activity administered by the central bank is different in an economic sense from one administered by other government agencies and, therefore, why, if the latter are included in a measure of the central government deficit, the former should be excluded.

The question of what precisely constitutes a central bank has been a controversial one. Indeed, central banking is often described by its practitioners as an art rather than a science, and the functions of central banks have evolved over time. The following list, derived from de Kock (1974), enumerates activities which would generally be accepted as properly within the jurisdiction of a central bank:

1. The regulation of currency, in accordance with the requirements of business and the general public, for which purpose the bank receives a full or partial monopoly of the note issue.
2. The provision of credit facilities, in a variety of forms, to commercial banks, discount houses, etc., in its capacity as the bankers' bank, and the acceptance of the responsibility of lender of last resort. ^{1/}
3. The control of credit in accordance with the needs of business and the economy, and in order to carry out the broad monetary policy adopted by the government.
4. Bank supervision and regulation.
5. The performance of banking and agency services for the government.
6. Custodian of the commercial banks' cash reserves.

^{1/} Two points should be made here. First, central bank lending designed to allocate credit to specific enterprises should not properly be termed rediscounting but rather quasi-fiscal lending. Second, if rediscounting takes place at subsidized interest rates, it can be considered--at least in part--a quasi-fiscal activity. See also discussion below.

7. The custody and management of the nation's international reserves.

8. The settlement of clearance balances between banks, and the provision of facilities for the transfer of funds between important centers.

These activities are of two kinds. Numbers (5) through (8) are essentially banking services. These activities have clear-cut inputs and outputs, and could, in principle, be done by the private sector. In providing these services, the central bank is essentially the same as any other public enterprise. ^{1/} Numbers (1) through (4) are activities that central banks perform either as the direct result of a government-granted monopoly, or as a fulfillment of government policy. The economic impact of these activities is rather more complex than that of the first type.

In this paper, activities (1) through (8) are generally--with some qualifications discussed below--considered monetary activities. All other activities are considered quasi-fiscal in nature.

III. Central Bank Accounts and the Economic Impact of Central Bank Activities

In this section, in order to establish a framework for further analysis, the accounting conventions used in central banks are reviewed. The economic impact of various central bank activities is then discussed.

Central banks typically publish two types of accounts: a profit and loss account, and an overall balance sheet. The profit and loss account shows a breakdown of current expenditures and revenues, and the distribution of the operational surplus (or the financing of a deficit). The overall balance sheet shows the composition of the central bank's assets and liabilities. The two accounts are clearly linked: a central bank operational profit (after taxes, transfers, etc.) will result in an increase in its assets, matched, on the liabilities side of its balance sheet, by an increase in its net worth.

A portion of the central bank operational profit (but not of any loss) is usually transferred to the government. Therefore, in order to understand the impact of central bank activities on central government, it is helpful to discuss the sources of revenue and items of expenditure typically included in the profit and loss account, and the effect of central bank activities on its overall balance sheet.

^{1/} This implies that the financial results of these activities should have the same impact as those of other public enterprises in the budget. As shown below, provided the central bank makes a profit, this will be the case.

1. Central bank profit and loss account

a. Revenue

Almost all central banks have a monopoly in issuing currency and creating reserves--this right almost defines a central bank. 1/ As the cost of production of notes and coin is much less than their exchange value, the central bank captures the difference, seignorage, during the money creation process. The same is true of the creation of reserves, a virtually costless procedure. To quote Meyers (1985):

"Like monarchs of old, the federal reserve makes money by making money. It does this first by purchasing federal reserve notes at the cost of production (less than 3 cents per note) and by issuing the notes at par. These non-interest-bearing loans are then exchanged for interest-bearing assets (government securities . . .)."

The interest on these securities in most cases provides a substantial part of a central bank's income. In countries where central banks are allowed to lend directly to the private and/or public sector, interest on these loans is often an important component of income.

In many cases, the central bank requires commercial banks to hold reserves equal to prescribed fractions of their deposits at the central bank (often at a below-market interest rate). These can then be reinvested in government bonds, or used to finance other central bank activities, such as rediscounting, providing a further source of income. 2/

Another method by which the central bank may generate substantial profits is through the administration of a multiple exchange rate system, where the central bank profits from the monopoly purchase and sale of foreign exchange. This is analogous to an export/import tax scheme in a country with a unified exchange rate or a tax on the sale and purchase of foreign exchange. According to the accounting conventions in the country, the revenue obtained from such operations may be transferred to the treasury directly or be added to central bank revenue. In the former case, gross government tax revenue would not be understated whereas, in the latter, tax revenue would be understated

1/ See Smith (1936).

2/ Many of the sources of revenue mentioned above fall within the rubric, "inflation tax". While central banks are rarely charged with the maximization of revenue from this tax, in many less developed countries the ease of collecting this type of tax has led it to become a major source of government finance. While it is well understood that the revenue obtained from the tax depends on the elasticity of the tax base, e.g., see Aurenheimer (1974), it is often the case that central banks appear to have exceeded the revenue-maximizing rate of inflation. (For an interesting discussion of why this might happen, see Khan and Knight (1982).)

and, if the profits come to the treasury as central bank profits, nontax revenue will be overstated.

Aside from these sources of income, central banks receive income from a variety of other activities, including fees for acting as fiscal agents to the government, 1/ charges for check clearing, and miscellaneous receipts such as rents. A further potential source of revenue (or loss) is the effect of exchange rate changes on the value of the foreign assets held by the central bank. 2/ Such valuation changes, however, are usually excluded from the computation of profits and losses of the central bank: instead, changes on the asset side of the central bank's balance sheet are matched by changes in a revaluation account on the liabilities side. This is discussed further below.

b. Expenditure

Central bank expenditures can be divided into three categories. First, there are the general administrative expenditures on wages and salaries, benefits, equipment, and premises. Second, there are interest payments on deposits of commercial banks at the central bank and any other central bank borrowing. Third, and most difficult to analyze, there are, in many cases, quasi-fiscal expenditures--expenditures on activities that are additional to the central bank's monetary and exchange system responsibilities. These can take many forms: common examples are the provision of subsidized credit (either directly or indirectly through a rediscount scheme) to priority sectors, notably exporters and agriculture; contributions to development funds; expenses arising in connection with bail-outs of ailing banks or industries; and exchange rate subsidies on particular types of transactions such as debt service payments or essential imports. However, the dividing line between quasi-fiscal and monetary operations is often not easy to draw. For example, central bank rediscounting of bonds is generally considered a monetary activity (see also discussion on pages 14-15). However, it often takes place at subsidized interest rates, which gives it a quasi-fiscal dimension.

As noted in the case of central bank revenue, the way in which quasi-fiscal expenditures are captured in the accounts is often unclear. In most cases any subsidy will remain implicit; for example, the cost of granting loans at below market interest rates is typically not calculated (see Wattleworth (1983)). Losses incurred in bailing out ailing industries may be reflected in an overvaluation of the central bank's assets rather than a reduction in operational surplus (although it should be noted that, in some cases, central banks are required to

1/ For instance, administering certain government accounts, serving as a depository for government funds, and managing the public debt.

2/ The analysis of foreign assets in this paper assumes that they are owned by the central bank. Interest on reserves, in the same way as interest on other central bank assets, is credited to the profit and loss account.

exclude bad or doubtful debts from the computation of net profits. In addition, if reserves are increased by an appropriate amount, the surplus for distribution would be reduced). Other items may remain off balance sheet, e.g., exchange rate or loan guarantees. The provision of foreign exchange at an overvalued exchange rate can also be considered an implicit subsidy. 1/

c. Distribution of profits or losses

In almost all countries, the governing central bank law regulates the distribution of net profits between three beneficiaries: central bank reserves, the government, and--if the central bank is only partially owned by the government--dividends to shareholders. 2/

Among the three, in recognition of the financial autonomy of the central bank, priority is usually given to central bank reserves. Thus, for instance, in some cases the law prescribes that all net profits will go to the government once the reserve fund reaches a certain level; in others that a varying percentage of net profits go to each, depending on the ratio of net profits to the bank's capital. In some cases the monies transferred to the government must be used in a particular way, usually to service or retire the national debt. The proportion of net profits transferred to the government is often substantial.

While a proportion of net profits is transferred to the government, a potential asymmetry exists in that a net loss would not in general result in a transfer from the government (as might be the case, for example, in a public enterprise), but would instead be met by a reduction in reserves. A further important point is that, unlike the situation for commercial banks, there is no reason why a central bank cannot continually make losses and have a persistently negative net worth. Therefore, unlike other public sector entities, central bank losses need not be "funded".

2. The central bank overall balance sheet

The overall balance sheet shows the composition of the bank's assets and liabilities. The liabilities of the central bank typically include the note issue, deposits from the government (in the central bank's role as fiscal agent), deposits by the private sector (usually due to legal regulation or in the central banks role as the banks' banker), and loans raised by the central bank (which can be in foreign currency). On the asset side, the central bank may hold a variety of assets. Resulting from its monetary activities--intervention or

1/ Under a unified exchange rate, this will only generate a loss if the balance of payments is in deficit. If the balance of payments is in surplus, the central bank will make a profit.

2/ For example, in Belgium, profits can also be distributed to the bank's personnel; and in Switzerland, profits are distributed to the cantons as well as the federal government.

rediscounting--it may hold government or private sector bonds, and foreign exchange. It may extend credit to the government, to finance the government deficit. And finally, it may undertake quasi-fiscal activities, including the extension of credit to the private sector.

To make the accounts balance, the difference between the bank's assets and liabilities is shown on the liability side of the balance sheet. This item--which is broadly equivalent to "other items net" in the central bank monetary accounts--has three important components. First, it includes the revaluation account which reflects valuation changes in the net foreign assets of the central bank. Second, it includes the net worth of the central bank, the cumulation of its profits, plus interest, over time. And third, it includes the central bank's original capital, physical assets (such as buildings), and reserves.

3. The economic impact of central bank activities

In this section the economic effects of central bank activities and how they differ from those of central government activities are reviewed. Since--almost by definition--quasi-fiscal activities have the same impact as equivalent government activities, the focus will be on what have been defined as monetary activities. As outlined earlier, monetary activities can be considered in two parts: first, provision of banking services to the government and private sector, and second, explicitly monetary operations 1/ which largely involve changes in the central bank's asset portfolio.

The first group of activities can be discussed relatively simply, since in performing them the central bank is very similar to a public enterprise. The bank provides services for the public and private sectors, for which it receives fees. Its expenditures and revenues have exactly the same effect as those of any other public enterprise, and should be treated accordingly. 2/

The second group, which includes revenue from seignorage, open-market operations and lending to the private sector through, for instance, the discount window, has somewhat more complex economic effects. The most straightforward is the revenue from seignorage, already discussed in Section II. 3/ This revenue transfers real resources from the private sector to the central bank, reducing private aggregate demand.

1/ Activities (1) through (3) in Section II.

2/ Under the conventions established in the IMF Manual on Government Finance Statistics (1986), expenditure of public enterprises is netted against revenue and the resulting deficit/surplus is shown in government expenditure/revenue. As demonstrated in the next section, this is effectively what happens in the case of the central bank.

3/ Effectively, revenue from seignorage is payment for the liquidity services of money.

In addition to their role in the generation of seignorage, intervention and rediscounting raise another question. Intervention through open-market operations involves the central bank either buying or selling securities in exchange for base money, usually in order to influence the path of the money supply or interest rates. Rediscounting involves the temporary extension of resources to the private financial sector in order to allow it to overcome temporary liquidity shortages without sharp movements in interest rates.

Both intervention and rediscounting can result in the extension of credit to the private sector. An important question is whether this credit extension is similar to--for example--a government loan to a particular industry (which would be considered as net lending) or whether it is qualitatively different. It is argued here that a distinction can be drawn, based on three important differences: motive, availability, and the prospects for repayment. 1/ Open-market operations are aimed at achieving a particular monetary result. There is no intention to provide reserves to any particular sector of the economy, and the central bank does not attempt to distinguish the ultimate receiver of liquidity. Rediscount policy, however, does provide reserves to specific private sector entities. Its purpose is money management: credit is provided (subject, in many cases, to various regulations) to whichever banks require it. In general, there is no attempt to channel the funds to any particular end use (although certain activities, e.g., speculation in foreign exchange, may be discouraged). Finally, assets acquired through rediscounting are likely to be serviced and ultimately repaid. Lending by government is, however, usually made for a specific policy purpose and directed toward particular enterprises which usually could not raise loans on the same conditions from the private sector. Such lending, therefore, involves at least implicitly an element of subsidy and may ultimately not be fully repaid.

There are really two elements to this argument. The first is that government net lending cannot be treated as if it creates an asset and liability of equal but opposite magnitude, and because of this it is conventional to include it in government expenditure. 2/ The second is that government expenditure should measure, in some sense, the gross

1/ The following analysis treats the case of rediscounts at market interest rates. As noted below, subsidized rediscounts can be considered both monetary and quasi-fiscal in nature.

2/ The United Nations accounting system, however, treats net lending as financing, on the grounds that it is also wrong to treat net lending as a transfer that will never be repaid. Clearly the truth--in terms of net worth--lies somewhere between the two. The net worth of the government is only reduced to the extent that the expected net present value of the loan falls below its face value. In an extreme case--where an exactly equivalent loan would have been readily granted by the private sector--the government is essentially acting as a commercial bank. A deficit caused by such lending activity would not have expansionary or crowding-out effects.

volume of resources the government directs toward public policy purposes. In this vein, intervention and rediscounting are not equivalent to government net lending or government expenditure in the sense that they do not direct resources to any particular sector for public policy purposes. These central bank monetary operations are much more like simple switches in assets that do not affect government net worth.

For these reasons, open-market operations and rediscounting should not be considered equivalent to government net lending. Such central bank operations are undertaken for the purposes of overall management of monetary conditions, and should simply be considered as (mutually offsetting) portfolio adjustments. 1/

IV. Amalgamating the Accounts of the Central Bank and Central Government

1. General issues

In this section we consider some of the theoretical and practical issues involved in amalgamating the accounts of the central bank and central government to produce a deficit measure consistent with the principles underlying the conventional deficit measure. We will divide our analysis into three sections, each covering different types of activities. The first section covers activities which affect only the profit and loss account of the bank; the second, activities that affect the bank's balance sheet; and the third, two activities that are worthy of special attention: direct lending to government and exchange guarantees. In the two concluding sections, these results are brought together in terms of the original concepts of monetary and quasi-fiscal activities.

a. Activities affecting the profit and loss account

Central bank activities which affect solely the profit and loss account of the central bank include the banking services side of monetary activities, and certain quasi-fiscal activities, for instance, subsidized credit refinancing for exporters, which is unwound over a short period. If the central bank makes a profit and provided that the amount the central bank transfers to its reserves is not excessive (reserves policy is discussed further below), the net operating surplus of the bank will accrue to the government and reduce the deficit.

1/ The interest on holdings of private sector bonds and on rediscounts does directly affect aggregate private demand and is properly to be considered central bank revenue.

Therefore, the net result of these activities is effectively already included in a conventionally measured deficit. 1/

It would thus seem that, for purposes of measuring the fiscal deficit, no distortion will arise if the central bank performs banking services, or if it undertakes quasi-fiscal activities of a kind such that the entire impact is felt on the central bank profit and loss account in the year in question. However, two points should be made here. First, leaving such activities in the central bank accounts will understate the gross level of government expenditures and revenues, frequently taken as a proxy for the level of government intermediation in the economy. Second, as noted above, the cost of quasi-fiscal activities undertaken by the central bank is rarely transparent. 2/ For instance, in providing subsidized credit, the central bank effectively accepts a lower rate of return on its assets, rather than provide a subsidy directly. Isolating quasi-fiscal activities in the central bank accounts would make these costs more transparent, thus aiding scrutiny of the activities by the authorities.

To conclude this section, two further questions are discussed--central bank reserve policy, and what happens when central banks make losses.

Earlier the role of the central bank's reserve policy in determining the residual transfer to government was noted. Obviously, if the central bank increases its transfer of profits to the government by reducing its transfers to reserves--and therefore its net worth--then government revenue can be higher, and the conventional fiscal deficits will be lower. Consequently, in interpreting the fiscal deficit, it is important to be sure that the central bank reserve policy is appropriate or at least will not be manipulated. Clearly, the central banks' auditors can potentially play a useful role in determining whether reserve transfers are adequate.

Subject to an appropriate reserve policy, developments in the central bank's profit and loss account are fully transmitted to the government accounts since the residual profit is transferred to the government. The question arises, however, as to what happens when the

1/ This analysis implicitly assumes that central banks remit 100 percent of marginal profit (when the bank is making a profit) and 0 percent of the marginal loss (when it is making a loss). It may be the case, however, in a particular country, that the marginal rate of transfer of central bank profits is less than 100 percent. In such cases, even were the central bank making profits, the transfer of a quasi-fiscal activity between the government and central bank would not have a completely neutral impact. This potential qualification is ignored in what follows.

2/ There are analogous problems with certain central government activities, for example, measuring the net value of public asset sales, i.e., the gross sales proceeds minus the value of the asset sold.

central bank makes a loss, no profits are transferred, and the loss is covered by balance sheet operations--for instance, a reduction in reserves, or printing money, with an equivalent reduction in central bank net worth. In this case, central bank losses are not fully transferred to the fiscal deficit and an asymmetry exists.

To deal with this problem, the symmetry of the situation must be restored. If central bank net profits go to the government, then central bank net losses should result in a transfer from the government. Thus, the impact of the entire central bank loss should be included in the government accounts, for instance, by a subsidy from government, thereby increasing the fiscal deficit. ^{1/} Assuming no change in financing arrangements, this has two corresponding effects on the central bank accounts. On the liabilities side, there is no reduction in net worth, as the losses are borne in full by the government. On the assets side, central bank credit to government increases by the amount of the losses, ensuring that the balance sheet continues to balance.

This procedure illustrates the philosophy underlying the approach of this paper. The central bank is considered to be a basically sound institution, which will not make losses on its core operations. It can, however, be asked to undertake loss-making operations by the government. The impact of these operations must be unscrambled from the accounts in such a way as to allow the full cost to fall on the government budget, leaving a financially sound central bank.

There are some circumstances, however, where central banks apparently undertaking only monetary operations can run deficits. This problem is considered in Section IV (2.a) below.

b. Activities that affect the central bank's balance sheet

This subsection is concerned with activities whose costs do not immediately (or fully) fall on the profit and loss account, but are instead reflected in a change in the composition of the central bank's assets and liabilities. Important examples of these are central bank loans to commercial banks or industry which are financed by changes in high-powered money, or by central bank borrowing.

Some theoretical considerations are needed at this point. The economic cost of an activity can be considered as the amount that would have to be paid to the private sector to undertake the activity in question. Thus, for example, the cost of net lending to the private sector is the sum that would have to be paid to a private commercial

^{1/} In Brazil, for example, where the monetary authorities traditionally carry out certain fiscal activities, the central administration makes a budgetary allotment for this purpose. (In the early 1980s, however, this allocation began to fall short of actual quasi-fiscal spending.)

bank to undertake the lending itself, and would, in theory, be equal to the expected discounted future loss arising from the loan, adjusted for risk. Thus, to maintain its financial integrity, when undertaking a quasi-fiscal activity, the central bank would ideally increase its reserves sufficiently to cover that cost, effectively reducing its profit transfer to government and increasing the fiscal deficit by the same amount. If it did this, the fiscal deficit would fully reflect the cost of the quasi-fiscal activities undertaken by the central bank in the sense of their impact on net worth. 1/

However, two problems arise here. First, in practice, there is no easy way to measure the ex ante economic cost under uncertainty. (For a thorough presentation of a technique to measure the subsidy element in budgetary lending in the case of certain repayment, see Wattleworth (1983).) Second, even if a suitable technique were available for the case of uncertainty, such a treatment would be inconsistent with that of the cash deficit definition presented above, where, for instance, net lending is included in full in government expenditure. The cash deficit reflects the financing requirement of the government, rather than the change in its net worth. For consistency, therefore, central bank lending to the private sector must be treated in a similar way.

Merely incorporating all central bank lending to the private sector into the fiscal deficit would ignore an important distinction, however. Central banks can hold private sector assets for two reasons: first, as a quasi-fiscal activity, involving, for instance, a direct loan to a particular private sector entity; and second, as part of their normal "monetary" activities, including rediscounting and intervention. 2/ If all changes in central banks' holdings of private sector assets were treated as net lending, these two activities would be treated as having similar economic effects. As argued in the previous section, normally, intervention for monetary purposes should not result in an increase in a consolidated deficit measure, financed by the issue of high-powered money. Rather, it would seem appropriate for both the purchase of the private sector debt instrument and the sale of high-powered money to be regarded as financing items, and cancel each other out.

In order to preserve the aforementioned distinction among types of central bank lending, the ideal solution would be to transfer quasi-fiscal lending from the central bank to the government accounts, with a counterbalancing change in net credit to government from the central bank. For consistency, one would also remove the corresponding interest

1/ For example, suppose a central bank wished to make a loan of US\$100 to an enterprise, and that similar claims on that enterprise were discounted by 25 percent in the market. When making the loan, the central bank would increase its reserves by US\$25 to cover its potential loss, reducing its income and thus the profit transfer to government by the same amount.

2/ A substantial proportion of the open-market operations of the Bank of England has involved purchase and sale of commercial bills.

payments on these assets from the profit and loss account--although, for the purposes of calculating the fiscal deficit, this is again not necessary as the net revenues from it will effectively be transferred to the government. 1/ 2/

Another potential source of changes in the central bank's balance sheet is changes in the value of its foreign exchange holdings due to changes in the exchange rate. In such a case, changes in exchange rates will usually cause changes in the domestic currency counterpart of net foreign assets, resulting in an unrealized profit (or loss). This valuation change could be treated in any of three ways: as central bank income, as an increase in central bank reserves, or it could effectively be frozen in a revaluation account.

In almost all cases, unrealized valuation changes are excluded from central bank income, on the grounds that the valuation changes attract no new resources into the country, and do not decrease claims on resources by those inside the country. The expansionary effects of government expenditure "financed" by such unrealized profits are similar to those of expenditure financed by central bank credit. Thus, unrealized valuation changes should not be considered as revenue enhancing or reducing, as they would be if they were included in central bank profits.

The impact then will generally fall on the central bank balance sheet. However, if it were added to reserves, this would bias the reserves figures. Therefore, valuation changes are most appropriately excluded from reserves as well as net income, and frozen in a revaluation account.

If the unrealized gains become realized, however, a different situation would exist. Compared with the situation that would have obtained with no revaluation gain, purchasing power in the private economy is reduced by the amount of the valuation gain, and thus expenditure "financed" by realized gains is similar to expenditure financed from revenue. If the central bank's accountants took note of the capital gain, it would be hypothecated to reserves: thus, other transfers from income to reserves would be correspondingly reduced, and transfers to the government would increase, reducing the fiscal deficit.

In some cases, however, the central bank does not keep track of capital gains and losses due to the sale of previously purchased foreign exchange. In such cases, rather than shifting the accounting entry from revaluation account to profit account, no change is made. In practice,

1/ Classification problems, of course, may once more arise, and gross central government revenues and expenditures may be distorted.

2/ This approach has a theoretical difficulty. If the central bank increases its reserves to some extent as a consequence of its lending, then double counting will occur: the reserves increase will increase the fiscal deficit, as will the full amount of lending.

this means the gain is never effectively realized. It is a true gain, however, as the liabilities of the consolidated central bank/government are lower after the gain than otherwise would be the case.

One ad hoc way around this accounting problem would be to attribute valuation gains or losses to central bank income over a period of several years.

2. Special issues of particular interest

a. Direct lending to government

In countries without developed financial markets, direct lending may be the only practical method of domestic government finance. An important question here is the rate of interest on central bank lending to government. If the interest rate is low, or even zero, the cost of financing the government deficit will be understated. To force the government to recognize explicitly the costs of financing its deficit, it would be more appropriate to charge market-related interest rates. However, if central bank profits are transferred to the treasury, this would not of itself discourage the government from borrowing more from the central bank, if it is prepared to ignore the monetary consequences, as higher interest costs would be matched by higher revenues. If the volume of government borrowing leads to a rate of monetary base expansion greater than that desired by the central bank, the bank may be forced to take costly measures to reduce liquidity growth. This may involve selling interest-bearing stabilization bonds or paying market-related interest rates on excess reserves of the banking system. In cases where interest rates are quite high, interest on required reserves might also become necessary to avoid undue bank taxation and potential disintermediation.

In essence, the government is using the central bank to finance its deficit and, in effect, the interest paid by the central bank on reserves and stabilization bonds is equivalent, in an economic sense, to interest paid on government debt. In this case the central bank is motivated by monetary reasons but the result is a quasi-fiscal operation. 1/

Though some central banks are prohibited from direct lending to the central government, the central bank may acquire government debt in the market and thereby achieve much the same result as direct lending. Central banks may also increase the market demand for government debt by allowing it to be held by banks to satisfy reserve or liquidity requirements, thereby reducing the interest rate the government needs to pay to sell it. Thus, manipulations of reserve or liquidity requirements, as well as open-market operations involving government

1/ If the central bank makes a profit, the interest paid on these bonds correspondingly reduces the transfer to government. Consequently, the interest costs do increase the fiscal deficit.

securities may have implications for the central government deficit even though they might be considered "purely monetary" operations.

A similar potential for reducing recorded government expenditures arises with purchases of foreign exchange by the government through the central bank. Subsidized exchange rates may be given for selected government purchases and debt service.

In cases where the operating conventions mentioned above serve to reduce nontax revenue received from the central bank, the gross expenditure and revenue flows of the central government are understated although the overall deficit remains unchanged. In cases where central banks are running deficits, however, in addition to influencing the gross flows, the central government deficit is reduced. It is clear that in such cases government deficit figures must be treated with some caution.

b. Central bank exchange rate guarantees

Unlike most other central bank activities, guarantees have no immediate effect on either the profit and loss account or the balance sheet. Nevertheless, in many cases, notably in Latin America, they have eventually resulted in very large losses.

A foreign exchange rate guarantee is a form of insurance contract. For a specified premium, the insured obtains a guarantee of foreign exchange at a certain price on a given date. If a premium is charged that is above the actuarial value of the contract, then the insurer stands to make a profit in return for reducing the insured's risk. Of course, if a lower premium is charged and, in many cases, guarantees were offered for free, an ex ante subsidy is provided.

In many cases in Latin America, exchange rate guarantees were offered as a way to facilitate foreign borrowing by domestic residents. These guarantees fixed the debt service in domestic currency terms, thereby reducing the risk to the creditor that the debtor would default solely on account of a real exchange rate depreciation. Had the central bank acquired the foreign currency counterpart of such borrowings, it could have diversified its own risk by holding external foreign assets. Because much of the borrowing was tied to imports, and also for other reasons, central banks did not keep foreign exchange backing for their guarantees. (Inasmuch as these might be considered contingent liabilities, one would not expect that full backing is necessary.)

In cases where firms borrow abroad and seek an exchange rate guarantee, they are usually attempting to insure themselves against the real exchange rate depreciation that might result from a large nominal depreciation. This is a larger problem for the firm the lower is the proportion of the firm's earnings derived from goods priced in world markets. Unfortunately for the central bank, the demand for such guarantees increases when there are expectations of a devaluation and at

such times, of course, guarantees are quite risky. At the same time, however, if the firm is borrowing abroad, this can be expected to alleviate pressure on the central bank to supply foreign exchange in the short run. As the demand for guarantees increases, especially as firms roll over nonguaranteed debt, the bank's foreign exchange exposure increases.

With the growth of guarantees, of course, the incentive not to adjust the nominal exchange rate increases, as this would inevitably involve substantial losses for the central bank. In those cases where large losses resulted, the central bank, usually due to a rapid rate of base money creation, could not maintain the rate, devalued, and the guarantees were called. From the perspective of the central bank's balance sheet, when a guaranteed debt service payment is made, the value of its foreign assets falls by an amount equal to the foreign currency payment multiplied by the new exchange rate, which is greater than the amount of base money used by the private sector to purchase foreign exchange. ^{1/} Thus, foreign assets fall by a larger amount than base money and the difference is a reduction in the net worth of the bank.

What are the economic impacts of such a policy? And here we are speaking of the policy rather than a particular realization. In any insurance scheme there is the potential for the insurer to take losses from time to time. This is true even if the fundamental policy is profitable. In most cases, though, the central bank traded guarantees for access to foreign exchange at favorable rates and, therefore, did not charge premia related to the cost of the service it was providing. Assessing the expected present value of gains and losses of such a policy is very difficult. It also raises the question to what extent contingent liabilities should be measured and included in the accounts. Unfunded social security schemes and government guarantees of public sector enterprise or private debt are other examples of off-balance sheet items that may represent very important claims on future government resources.

A current debate in commercial banking practice and regulation in the developed countries is to what extent reserves should be held against contingent liabilities (thereby reducing the net return on total assets). The difficulty with these situations is that the liability can only be expressed in expected value terms--it is off in the indefinite future, and is most probably not accounted for in the current budget or perhaps even in the budget planning horizon. However, such liabilities can be quite important. The adoption of an actuarially unsound program, i.e., where the premia charged are not enough to cover the expected future payments, may have more of an ultimate impact on the future tax burden of the private sector than any change in the current budget. Ideally, the central bank accountant could measure the expected gains and losses, attribute the budgetary cost to the adoption of the policy

^{1/} Which, of course, equals the foreign currency payment multiplied by the old, guaranteed, exchange rate.

rather than to a particular realization, and thereby develop a correct measure of the ex ante subsidy. A similar issue arises in the context of government-provided bank deposit insurance. Here the public good aspect of preventing bank runs must be weighed against the potential moral hazard problem.

Unfortunately, central banks do not usually relate premia to the value of the guarantee as they are often under severe pressure to obtain foreign exchange and are willing to extend these guarantees probably with the knowledge that a debt rescheduling would be necessary should the guarantees be called upon.

How should this situation be treated? As a practical matter a calculation of the fiscal impact of an issuance of contingent liabilities is very difficult. However, while it may be that there is no alternative to calculating losses as they are realized and that these losses must be financed (the bank could borrow the difference between the domestic currency value of the foreign exchange payments it would have to make and the value it receives from the government or private sector), one should remain cognizant that when the loss is realized, a contingent liability is extinguished. This points out a principle that is important to recognize. To measure the impact of guarantees on aggregate demand, one must return to the adoption of the policy and determine the ex ante subsidy. For it was the ex ante subsidy that affected economic decision-making.

Therefore, although the correct focus should properly be on the policy of exchange guarantees and, in an expected value sense, this is the potentially debt-creating activity, there seem to be no very practical alternatives to including losses from guaranteed payments in the public sector deficit.

Of course, in many cases, the central bank does not freely offer guarantees. In the context of a debt rescheduling, it has been the case that governments and/or central banks were forced to assume the external transfer portion of private sector debt even when it was not guaranteed by the government. In cases such as these, the central bank is virtually forced to take a loss if the exchange rate guarantee is at an overvalued rate. The future losses generated by such an agreement should be viewed as part of the cost of a debt rescheduling and, therefore, should be part of a deficit measure, especially if the direct impact on the government's deficit is to reduce debt service payments.

The main issue with respect to exchange rate guarantees is the treatment of contingent liabilities in circumstances when they are likely to become realized. This is akin to the situation with public enterprise debt. If the enterprise is operating efficiently and borrowing to finance profitable expansion, a government guarantee is less likely to be a problem than if the borrower is a loss-making enterprise that is a drain on the government budget. It is uncharacteristic for governments to charge insurance premia to firms in such cases that reflect true economic costs. Therefore, a guarantee may

create a loss in expected value terms, and yet not be realized until some time later. Government net lending is treated as expenditure in the deficit definition used in this paper while government loan guarantees are not. At times this distinction appears arbitrary. Hopefully, government practice in granting loan guarantees is such that it generally validates this distinction.

c. The implications of different accounting conventions in government and central banks

The conventional government deficit concept as presented here is based on a cash accounting system. Cash accounting is both useful and practical for government. It is useful in that it will be consistent with the deficit financing in any given period. It is practical because government is often unaware of its accruing receipts (for example, tax receipts due) and expenditures. However, it should be noted that conventional fiscal deficits are not based entirely on the cash concept. This arises, on the one hand, from noncash accounting in the central government where expenditures are typically recorded on a checks-issued basis which creates a problem of adjustment to the monetary figures--check float; and on the other, by the fact that public sector entities, including the central bank, presumably base their payments/receipts to government on the basis of their accounting surplus/deficit which may not be on a cash basis.

Central bank accounting systems typically follow the normal business practice of being on an accrual basis. This practice allows an easier calculation of the net worth concept. The analyst must therefore be careful in comparing the two deficit measures. 1/

V. Conclusion

It has been shown in this paper that if a central bank undertakes only monetary activities, and provided it is profitable, its net result will be included in the fiscal deficit automatically. This is also true of a profitable central bank if it undertakes quasi-fiscal activities that only affect its profit and loss account. However, if it undertakes other types of quasi-fiscal activities, such as net lending, which show up initially only as a change in the composition of the central bank's assets, the fiscal deficit can become an unreliable indicator. It will also be unreliable if the central bank makes losses.

Ideally, government accounts should incorporate quasi-fiscal revenues and expenditures, leaving the central bank accounts covering only monetary activities. Such an approach, however, faces numerous practical difficulties due to the differing accounting systems used in government and central banks. There is no elegant solution to these

1/ An extensive discussion of this issue may be found in Chang (1985).

problems. However, some supplementary indicators could be developed to provide additional information. First, central bank losses in the profit and loss account could be amalgamated into an adjusted fiscal deficit by the addition of a transfer from government to the central bank financed by credit from the central bank. Second, an estimate of the size of central bank quasi-fiscal activities falling outside the profit and loss account could be made, and the activities removed from the central bank accounts and amalgamated into the adjusted fiscal deficit. Such a hybrid deficit would involve inconsistencies in the sense that a net-worth concept might be mixed with a cash concept, but would have value as a supplementary indicator showing the approximate impact of central bank quasi-fiscal activities on the economy.

Experience in a number of countries has shown that the existence of exchange rate guarantees can result in heavy losses for central banks. Further supplementary indicators--showing, for instance, the value of such guarantees outstanding, and the losses that would result if they were called at the current exchange rate--could provide useful information. However, there is no simple way to include guarantees in a conventional deficit measure unless and until they result in actual losses.

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