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Financial Programming in East and Southern Africa

In June of 1999, a regional workshop on financial programming was held in Lilongwe, Malawi. Representatives of central banks and finance ministries from six countries — Kenya, Malawi, Mozambique, Tanzania, Uganda and Zambia — attended the event. The workshop was organized by the Reserve Bank of Malawi and the Economics Department, Chancellor College, University of Malawi, with funding from USAID through the EAGER project and the MEMAR project. This Policy Brief provides a basic explanation of financial programming and describes the state of implementation in the countries which participated in the workshop.*

Financial programming is a widely-used analytical tool for determining monetary and fiscal targets to achieve or sustain macroeconomic stability, as a foundation for successful economic development. Broadly speaking, "programming" models compute an optimum solution to a problem defined by an explicit objective function, given a set of structural and behavioral constraints depicting the system in question. For financial programming, the objective function consists of short- and medium-term macroeconomic policy objectives, such as targets for inflation, growth, and balance of payments. The constraints include (a) familiar macroeconomic consistency conditions from the national accounts, the balance of payments, the government budget, and the monetary survey; (b) basic macro-behavioral relationships such as the demand for money and import demand functions; and (c) exogenous parameter projections, such as assumptions about net foreign financing. The model solution gives targets for monetary and fiscal policy—typically defined in terms of money and credit growth, and the budget balance, respectively—consistent with the specified objectives and constraints.

Macroeconomic stability involves both external and internal balance conditions. External balance is expressed by a balance of payments condition, such that policies are consistent with achieving a target stock of foreign exchange reserves, given a feasible and sustainable plan for net foreign capital flows. Internal balance is conceptualized as the expansion in nominal aggregate demand consistent with inflation and growth objectives; this condition determines targets for money and credit growth. Whether the model is simple or complex, financial programming provides a systematic and consistent framework for linking macroeconomic

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objectives and instruments. Consequently, policies derived from a FP framework are far more likely than ad hoc measures to succeed in achieving the designated stabilization objectives.

As countries in Africa have shifted from control regimes to market-oriented strategies for development, the role for financial programming has become much more important. Many governments previously controlled prices for numerous products and services, as well as the exchange rate, the price and volume of credit, and even the allocation of credit, while managing budget programs with little regard for macroeconomic consequences. In nearly every case, the resulting fiscal deficits and credit expansion caused the stock of money to rise much more quickly than production, creating strong inflationary pressures and an overvalued currency. The macroeconomic imbalances showed up in parallel markets, queuing, rent-seeking, pervasive inefficiency, and tremendous disincentives for productive investment. The failure of this strategy was an important factor in convincing governments to adopt market-oriented reforms. Since macroeconomic stability is a vital cornerstone for the success of these reforms, financial programming has become an essential tool for economic policy management.

The IMF continues to play a strong and often dominant role in determining the financial program. This is due in part to the fact that programs must be acceptable to the Fund, as a condition of foreign financing. But the situation also reflects a lack of technical capacity on the part of host governments. Many countries are in the early stages of developing the capacity to implement financial programming, and therefore remain dependent on the IMF for the technical analysis. This puts the government at a disadvantage in negotiating the terms of their adjustment program, since the IMF often opts for austerity in setting parameter values, defining program objectives, and exercising judgements about the model structure. Only by assessing macroeconomic conditions with a model of their own can governments fully understand the assumptions involved in determining the monetary and fiscal benchmarks, and the range of options among alternative policy scenarios. When technical analysis is ceded to the IMF, the host government ends up negotiating reactively rather than pro-actively— usually with insufficient time to study carefully the Fund's assumptions and seek better alternatives.

The premise of EAGER/PSGE work on financial programming is that African governments can and should develop capacity for financial programming. Each government should analyze on its own the short-term and medium-term program options, and send home-grown proposals to the IMF as the basis for negotiations. By doing so, governments will develop a deeper grasp of the policy analysis, stronger ownership of the programs, and greater credibility for macroeconomic management. They are also likely to end up with "better" programs in terms of reflecting local judgments about structural constraints, behavioral relationships, feasibility of the objectives, and trade-offs among macro risks. Moreover, the IMF will welcome the developments, which are bound to improve the likelihood of successful program implementation.

Virtually every country in the region by now has a cadre of economists in the central bank and finance ministry who have studied financial programming methods through courses offered by the Fund, or in other contexts. Countries are at various stages in the process of developing the capacity to design their own financial programs. This entails several steps: (1) creating a consolidated data-base of macroeconomic statistics; (2) developing a macroeconomic consistency model to derive monetary and fiscal targets; (3) pursuing research to improve the estimation of basic macro parameters and behavioral relationships, and develop better methods for projecting variables that are exogenous to the model; (4) establishing capacity-building programs to guarantee sustainability; and (5) restructuring organizational systems and procedures so that FP is fully integrated into the normal routine of policy management. The EAGER/PSGE studies on monetary/financial programming in Tanzania and Malawi focused on steps (1) and (3), with the idea that this can be a catalyst to stimulate the entire process.

The remainder of this note briefly summarizes experience with financial programming among countries participating in the Lilongwe workshop (in alphabetical order), as conveyed by the participants.

Kenya. The process of economic management in Kenya changed drastically with the implementation of reforms in the early 1990s, which left the determination of financial prices and the allocation of financial resources to market forces. Government institutions responsible for managing the economy devised new policy instruments for the liberalized economic environment, based on targeting aggregates to induce desired changes in the main performance indicators. The Central Bank of Kenya now prepares annual forecasts of the main aggregates and determines the appropriate policies for achieving the desired macroeconomic objectives. The assessment covers inflation, output, money supply, domestic credit and gross official reserves (in months of import cover). Government budgetary operations are also included in the analysis. The principal objectives of the Central Bank of Kenya are to achieve low and stable inflation, and to foster an efficient and stable banking system. Proper implementation of these goals helps to establish a better economic environment for private sector activities. Current targets include 5% inflation and 3 months of import cover for gross official foreign reserves. The goals are translated into monthly targets, which are updated continuously as new data become available.

Malawi. Over the past two years, RBM has made great strides in developing a consolidated macroeconomic database, creating a home-grown macroeconomic consistency model, undertaking econometric research on macroeconomic relationships, and developing plans for the implementation of financial programming. The efficacy of this work was demonstrated in the context of the IMF program which was concluded in December, 1998. By March, 1999, M2 was above target by more than 15%, but RBM was able to show that the performance gap was caused by problems in setting the target, not by excess money growth. Virtually every indicator suggested that liquidity was actually tight. The problem derived from the parameters adopted by the IMF to determine the program targets for 1999. First, the assumption on inflation for December 1998 was too low, causing every nominal target for 1999 to be unrealistically stringent. In addition, the program assumed that velocity would rise by 12% in 1999 on a period-average basis. This decline in demand for real money balances is difficult to reconcile with the program scenario of declining inflation, high real interest rates, a strong foreign exchange reserves position, and stable exchange rate. If anything, the scenario suggested that money balances should recover in 1999. Running its own financial programming model, RBM obtained a March target for M2 that virtually matched the actual value. When RBM presented their analysis to the Fund, a compromise was reached on targets for the remainder of the year.

Mozambique. Mozambique began to shift towards a market economy in 1987 with the introduction of the Economic Rehabilitation Programme (PRE), which aimed to eliminate internal and external imbalances by reducing government control of prices, production, exchange rates, interest rates, and credit allocations. In the same year Mozambique reached agreement with the IMF on the first ESAF program, marking the first step toward using financial programming, with the primary target variables being net domestic assets of the financial system, together with net foreign assets on the external side. Starting from a crude system of administrative allocations of bank credit in 1987, both the analytical methodology and the control systems have evolved slowly in conjunction with reforms in the financial system. Inflation remained high until 1997, when two large state-owned banks were privatized, greatly improving financial discipline. Starting in July 1999, the intermediate target of monetary policy switched to net domestic assets of the central bank. The Bank of Mozambique is also developing new tools for short-term forecasting, and introducing a new market in Treasury bills. These developments are leading up to full conversion to indirect monetary controls in

2000, which will increase the effectiveness and importance of financial programming as a tool for macroeconomic policy management.

Tanzania. Like many other countries in the region, Tanzania has undertaken far reaching reforms to liberalize the financial system during the 1990s. At the same time, the Bank of Tanzania has been moving gradually to develop financial programming systems to strengthen capacity for indirect monetary management. Recently, the Bank created a consolidated macroeconomic database and established a new section to develop and maintain this system. There are still serious problems, however, with the quality and coverage of the data. The BOT has also developed an interlinked spreadsheet model of macroeconomic accounts, providing a consistency framework that can serve as the foundation for financial programming. In addition, they have undertaken econometric studies of important macroeconomic relationships, including considerable work on money demand. Most of the work at BOT has focused on monetary programming—which differs from financial programming only insofar as the analysis centers on determining targets for monetary policy.

Uganda. Uganda began moving toward a FP approach to macroeconomic consistency in 1987. Currently, the Bank of Uganda monitors the performance of the economy in cooperation with other government agencies on a monthly basis, making assessments of the actual position versus targets for the end of each quarter. This information is shared among government agencies to help the authorities undertake adjustments needed to remain within the program. The BOU also monitors on a daily basis the growth of base money and other liquidity indicators in the economy as a guide in the conduct of monetary policy. Partly as a result of the financial programming system at the BOU, Uganda's economy has performed well over the past six years. The inflation rate has been kept low and economic growth has averaged 6.5%. The deficits on the fiscal and current account have been contained at close to desired levels. Between 1990 and 1998, reserves of the central bank have increased from less than two-weeks to over 4.5 months of Uganda's import bill.

Zambia. In Zambia, the pace of implementation has been slowed by lack of institutional capacity. The workshop representative from the Bank of Zambia was well trained in financial programming, but reported that he was the only one working in this area, and that the supporting institutional structure was weak. The analytical framework being used is a simple spreadsheet model developed in 1993, which has remained essentially unchanged since that time. Throughout the workshop, similar examples were mentioned of central bank staff getting trained abroad in financial programming, and then returning to an environment where financial programming was not part of the normal work program. While trained specialists are necessary for effective financial programming, it is also essential for central banks and finance ministries to develop an institutional structure that is capable of maintaining an excellent database of economic statistics, determining relationships between these key macroeconomic variables, setting macroeconomic policy targets, and ultimately, controlling the monetary and fiscal performance in accordance with the program targets.

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