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Credit Policy and Economic Activity
in Developing Countries with
IMF Stabilization Programs

Thorvaldur Gylfason

INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS
PRINCETON UNIVERSITY
PRINCETON, NEW JERSEY

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The author of this Study, Thorvaldur Gylfason, is Professor of Economics at the University of Iceland and Senior Research Fellow at the Institute for International Economic Studies at the University of Stockholm, Sweden. Previously, he was on the staff of the International Monetary Fund in Washington, and from 1986 to 1987 he was Visiting Professor of Public and International Affairs at Princeton University, where this Study was completed. He has published a number of articles on macroeconomics and international economics.

PETER B. KENEN, *Director*
International Finance Section

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I INTRODUCTION

Since the days of Keynes and the Great Depression, economists and policy-makers have generally accepted the view that, unless prices are perfectly flexible and productive resources are fully employed, money and credit can exert a strong influence on economic activity and growth in the short run. In addition to persuasive evidence from econometric models for industrialized countries, economic developments in the United Kingdom and the United States in the early 1980s were especially revealing in this regard. The imposition of monetary restraint (or merely the threat of restraint, depending on the interpretation of the statistics in the case of the United Kingdom), accompanied by record high real interest rates and exchange rates, contributed significantly to a major downturn in economic activity.

Much less empirical evidence is available on the experience of developing countries. To date, only a few studies have attempted to assess the effects on employment and output growth of the government's control over credit from the domestic banking system, and they suggest that these effects are either weak or statistically nonsignificant. The issue is particularly important for developing countries, where control over bank credit is usually the main direct instrument of monetary policy (see Guitian, 1973) and where bank credit is also the major means of financing public expenditures, so that the effects on output growth of equivalent doses of credit, monetary, or fiscal restraint (or expansion) are essentially the same in the short run.

In one of the earliest studies of stabilization programs supported by the International Monetary Fund, covering experience from 1963 to 1972, Reichmann and Stillson (1978, p. 303) concluded that while the rate of domestic credit expansion was reduced significantly in a large majority of the programs that called for such a reduction, "there is no evidence that programs systematically affected the level of economic activity within the period considered." But this conclusion must be interpreted with caution, for two reasons. It applies not to the effects of credit policy *per se* but to the effects of stabilization programs in which credit restraint was frequently accompanied by other potentially expansionary measures such as devaluation. Furthermore, it refers

This study was prepared while I was in the Standby Programs Division of the Exchange and Trade Relations Department of the IMF, and completed while I was Visiting Professor of Public and International Affairs at Princeton University in 1986. I am indebted to numerous colleagues inside and outside the IMF for helpful comments and suggestions, but I retain full responsibility for any remaining errors or omissions as well as for the views expressed. Peter Sellin assisted with the computations.

to growth of *industrial* production, which, as the authors point out, is not an adequate indicator of aggregate economic activity in most developing countries, whose economies are predominantly agricultural.

A similar lack of evidence of an adverse effect of Fund stabilization programs on growth performance in the short run was reported by Donovan (1982) in an evaluation of stabilization programs undertaken in the 1970s, and by Connors (1979) and Killick (1984). On statistical grounds, however, it is difficult to judge the reliability of the empirical results of these studies. Donovan presents no statistical tests for the significance of his results, while the nonparametric tests of Connors and Killick, like those of Reichmann and Stillson before, are biased by the application of these tests to autocorrelated time series (see below).

According to another study based on an econometric financial-programing model applied to data for twenty-nine developing countries during 1967-75, a once and for all contraction of domestic credit by 10 percent lowered output by only about one-half of 1 percent in the short run (Khan and Knight, 1982, Chart 8, p. 725), but the model is exclusively financial and thus ignores real aspects as well as the supply side of the economies (see also Khan and Knight, 1981). More recent empirical evidence is lucidly summarized by Khan and Knight (1985, Table 1); it indicates that a 10 percent reduction in the growth rate of domestic credit or money supply leads, on average, to a 1 percent reduction in the growth rate of output (GDP or GNP) in developing countries.

This study reviews the relationship between credit policy and growth performance, as well as other relevant aspects of the economic record, under stabilization programs supported by the IMF during 1977, 1978, and 1979 (see Table 1). The analysis is confined to the so called "upper-credit-tranche standby arrangements" concluded during this period and does not cover the longer-term adjustment programs supported under the so called "extended facility" of the Fund.¹ The principal aim is to determine on the basis of available evidence and by a formal statistical test whether economic growth was adversely affected in the short run by the credit policies adopted under the adjustment programs reviewed and, if so, to what extent. The particular group of countries examined here is ideally suited to the study of the relationship between restrictive credit policies and growth because domestic credit restraint played a vital role in virtually all the adjustment programs.

It should be emphasized at the outset that the objective is *not* to investigate the magnitude of the almost surely negative direct effect of domestic credit restraint on growth in the short run, which was scrutinized in Khan and Knight (1985, Table 1). It is rather to examine whether these programs in their entirety have influenced growth directly and indirectly, or whether

¹ For a detailed description of the lending policies of the IMF, see Williamson (1982) and Killick (1984b, pp. 128-144).

TABLE 1
COUNTRIES UNDER STUDY

Standby Program Countries ^a			
1977	1978	1979	Reference Countries ^b
Argentina	Burma	Bangladesh	Bolivia
Burma	Gabon	Congo	Dominican Republic
Egypt	Guyana	Ghana	Greece
Italy	Panama	Kenya	Liberia
Jamaica	Peru	Malawi	Morocco
Pakistan	Portugal	Mauritius	Senegal
Peru	Turkey	Panama	Syrian Arab Republic
Romania	Zambia	Philippines	Tanzania
Sri Lanka		Sierra Leone	Thailand
United Kingdom		Togo	Yugoslavia
Zaire		Turkey	
		Western Samoa	
		Zaire	

^a Countries that entered into upper-credit-tranche standby arrangements with the Fund during 1977, 1978, and 1979.

^b Other developing countries that encountered serious balance-of-payments problems during 1977-79 but did not enter into upper-credit-tranche standby arrangements with the Fund during this period (see section 4. C).

other developments have accounted for changes in the growth rate. This is an important distinction, for the reason previously noted—the possibility, and in many cases probability, that the negative direct effects of domestic credit restraint on growth performance were partly or wholly offset by other policies such as devaluation or an increased inflow of foreign capital. Indeed, insofar as domestic credit restraint induced a capital inflow by raising the confidence of potential foreign lenders or donors in the economies of the countries under study, deflationary domestic credit policies may be said to have had a positive effect on output growth indirectly.

Under ideal conditions, empirical analysis of the effectiveness of credit policy in individual countries or groups of countries should be based on fully specified econometric models. However, the limited quantity and poor quality of the data available for a majority of the countries in the present sample make this impossible. In particular, data constraints preclude any attempt to quantify potentially important supply-side considerations. This may explain the narrow financial focus of the econometric model of Khan and Knight (1981, 1982). In the tradition of the monetary approach, they make no attempt to distinguish between the components of the overall balance of payments, so that their analysis disregards not only all issues pertaining to aggregate supply but also the possible substitution of foreign for domestic credit.

The failure to incorporate indirect catalytic effects of domestic credit policy on the capital account may, in turn, explain why the direct effect of domestic credit contraction on output appears so small in their model.

Because it is hard to estimate reliable econometric models for developing countries, Reichmann and Stillson (1978), Connors (1979), Donovan (1982), and Killick (1984) have employed a "before-and-after" approach; they have compared the values of such strategic macroeconomic variables as the balance of payments, output, and inflation before and after the inception of an adjustment program. If not applied with sufficient caution, however, this method is likely to be inconclusive. The main difficulty is the *ceteris paribus* assumption on which the method is implicitly based but which is rarely satisfied in practice. Without guidance from an explicit theoretical model that specifies the relationships between endogenous and exogenous variables, it is difficult to determine through simple before-and-after comparisons whether observed changes in, say, the balance of payments or output growth can be ascribed to the programs under study or to other factors implicitly held fixed (or not included) in the analysis. This study seeks to avoid this difficulty—and thus differs sharply from its predecessors—by using a theoretical model to specify clearly what relevant variables are being held constant in each comparative before-and-after experiment, and by devising experiments to account for variations in such variables (e.g., by distinguishing between devaluation and nondevaluation programs).

Another important weakness of the earlier studies, already noted, is that tests of the statistical significance of the empirical results are either absent (Donovan, 1982) or biased (Reichmann and Stillson, 1978; Connors, 1979; Killick, 1984). In the latter cases, the source of the bias is the application of nonparametric rank tests to autocorrelated time series. If output growth is positively autocorrelated, a high rate of growth before the program is likely to be followed by a high rate of growth during and after the program. In other words, autocorrelation reduces the probability of detecting a significant reduction in output growth resulting from the program. The present study avoids this bias altogether by dealing exclusively with cross-section data that are uncorrelated (except possibly insofar as macroeconomic variables in the countries under study are jointly influenced by world economic developments).

A third major difficulty with earlier applications of the before-and-after approach, noted by Khan and Knight (1982, p. 721) and Williamson (1982, pp. 649-650), is that they have inevitably left unanswered an important hypothetical question: Would observed changes in, say, the balance of payments have occurred in any event in the absence of a stabilization program? This question is, of course, unanswerable in principle, because we cannot know what would have happened to policy variables such as domestic credit

without the program. It is possible, however, and potentially valuable to find the answer to another question: Were the stabilization programs under review associated with economic developments that differed significantly from those observed in other countries that had similarly serious current-account or overall balance-of-payments problems but chose *not* to enter into standby programs with the Fund? In contrast to all of the earlier papers mentioned above, an integral part of the empirical analysis reported in this study involves nonparametric statistical tests of the significance of the differences observed between the performances of a "program group" and a "reference group" (listed in the last column of Table 1).²

Chapter 2 discusses some major channels through which credit policy influences the balance of payments, inflation, and growth in developing countries, with special emphasis on the potentially important role that the volume of credit can play as a factor of production on the supply side of the economies of these countries. Chapter 3 develops the macroeconomic implications of the supply and cost effects of credit policy within a rigorous but simple analytical framework. This general framework is intended to serve as a guide to thinking about the statistical material in Chapter 4, which presents empirical evidence on the relationships between key magnitudes in the macroeconomic adjustment process during the standby arrangements under review. Using the theoretical background provided in Chapter 3, an attempt is made to answer these questions: Did the rate of domestic credit expansion slow down under these adjustment programs? If so, did the balance of payments improve as intended and did the rate of inflation fall? On the whole, was growth affected during and immediately after the program period? Was the experience of the countries that entered into these arrangements significantly different from the experience of the reference group of countries that elected to adjust on their own or not at all? The fifth and final chapter summarizes the study's principal findings and discusses their implications for economic policy in developing countries.

² A review and critique of methodological aspects of the empirical literature on the effects of stabilization programs supported by the Fund is provided in Goldstein and Montiel (1986).

2 SUPPLY AND DEMAND EFFECTS OF CREDIT POLICY

Over the years, the authorities of many member countries of the Fund have hesitated to make the macroeconomic adjustments necessary to correct fundamental balance-of-payments disequilibria and reduce inflation. There is little doubt that their reluctance has frequently reflected concern about the potentially adverse effects of adjustment on the rate of growth of output and employment in the short run, as well as on the distribution of income. These concerns have also been the source of old and new criticism of the widely accepted policy prescription that monetary and fiscal restraint—and sometimes also devaluation—are normally necessary for lasting success in the battle against balance-of-payments deficits and inflation. In the words of Taylor (1981, pp. 500-501):

It is quite likely that both devaluation and monetary contraction will cause stagflation under semi-industrialized macro-constraints. By leaving the possibility of an output reduction out of their models, financial programmers cannot deal with this natural consequence of the policies they commend. They implicitly tax the poor twice, by real wage reductions and employment declines.

To set the stage, it may be worthwhile to review briefly the major channels through which credit policy can affect output and employment in the short run. There is general consensus about the adjustment mechanism on the demand side of the economy. A reduction in the supply of domestic credit, or in its rate of expansion, reduces expenditure by the private sector, the public sector, or both. By thus reducing aggregate demand for goods and services, credit restraint exerts downward pressure on prices or the rate of inflation and on the demand for imports, improving the current account of the balance of payments.

Less is known with a reasonable degree of certainty about the response of the supply side of the economy to a contraction of domestic credit. The aggregate supply of domestically produced goods and services may be unaffected in the short run. This might be the case, for example, in some primary-producing countries where output is determined principally by production conditions in the primary sector (e.g., mining), producers have limited flexibility in the use of factor inputs, and the production technology is to a large extent fixed in the short run. In most agricultural countries and especially in semi-industrialized countries, however, complete rigidity of supply must be considered unlikely except perhaps in the very short run. In manufacturing, for example, salaried labor and imported intermediate goods and raw materials are important variable factors of production, and so is financial working capital. With nominal wages fixed or at least sticky in the short run by contract

or convention, the real wage of labor varies inversely with the price level. For example, real wage costs fall when the domestic price level rises and producers receive higher prices for their products, and it becomes profitable for firms to hire more labor and expand production. This process is reinforced by increased use of imported inputs that have become relatively less costly. Under a fixed exchange rate, the relative domestic-currency prices of imported inputs fall when the domestic price level rises. These processes stimulate production. Conversely, when domestic product prices fall, labor costs rise in real terms and the relative prices of imported inputs also rise, and these processes discourage production. A similar argument applies to agriculture, where farmers have a clear incentive to expand production when real producer prices rise.¹ But it must be emphasized that the often unpredictable response of nominal wages (and exchange rates) to price changes, as well as uncertainty regarding the magnitude of supply responses and the time lags involved, make it much more difficult to anticipate the extent and speed of supply responses to price incentives than the relationship between aggregate demand and prices. Hence the uncertainty concerning the short-run effects of monetary and fiscal restraint on output—the slope of the aggregate supply curve.

As regards the factors that shift the aggregate supply curve, it has sometimes been argued that financial working capital plays a particularly important part in the production process in developing countries (see McKinnon, 1973, and Keller, 1980). Because domestic financial markets are not well developed, firms are heavily dependent on the domestic banking system for working capital. Frequently, they borrow from banks at the beginning of the production period to pay for labor and other inputs and repay at the end of the period, when output is sold. In these circumstances, bank credit can be viewed as a complementary factor of production. This suggests that the availability and cost of credit should be taken into account not only on the demand side of the economy but on the supply side as well. Reduced access of firms to bank credit may force them to contract and to reorganize remaining production along less efficient lines, driving up production costs and prices, but tight credit could also increase productivity by forcing firms to reduce costs. This applies equally to agricultural and semi-industrialized economies. Furthermore, credit contraction raises the cost of borrowing by increasing interest rates and thus raises costs of production, and this may contribute directly to a contraction of output. Prices may also tend to rise as producers try to pass part of the interest-cost increase on to their customers. If interest rates were initially held below market-clearing levels, however, these cost-raising effects might be offset by an increased supply of credit induced by higher rates of return.

¹ For recent empirical evidence indicating substantial price elasticity of supply of various cash crops in sub-Saharan Africa, see Bond (1983).

Where imported inputs play an important part in manufacturing production, devaluation will inevitably drive up costs of production, and this will cause output to contract and prices to rise for given demand. Again, however, this effect might be offset by the increased availability of foreign exchange for imports of factor inputs as well as for other uses.²

It is difficult at present to judge the empirical importance of these supply-side effects; very little direct or indirect evidence pertaining to them is available for developing countries. If these effects are important, restrictive credit policies may have a greater adverse effect on output growth and less of the intended depressing effect on price inflation than is commonly assumed. In the extreme case, the supply-reducing effects of credit restraint on prices may dominate the demand effects, causing stagflation, and the same applies to interest-rate and exchange-rate policy. This is the case contemplated by many critics of orthodox stabilization programs that emphasize monetary and fiscal restraint sometimes combined with devaluation (see the quotation from Taylor, 1981, at the beginning of this chapter, as well as Bruno, 1979, and van Wijnbergen, 1982). At the other end of the spectrum is the assumption frequently made in monetary analyses of inflation and balance-of-payments problems that output is predetermined in the short run independently of credit conditions, because factor markets clear continuously and price expectations adjust rapidly.

Neither of these extreme views is likely to have much applicability to most developing countries. On the one hand, price expectations do not appear to adjust very rapidly to new circumstances; nor do factor markets normally clear instantaneously, as demonstrated, for example, by persistent urban unemployment in many less-developed countries. On the other hand, there is no evidence to support the contention that the supply effects of monetary and fiscal restraint on price developments, with or without devaluation, tend to dominate the demand effects and thus cause stagflation. To be sure, many non-oil-producing developing countries have been afflicted by slower growth, higher rates of inflation, larger payments deficits, and heavier debt burdens than before, despite attempts by some of them to restrain domestic demand. But that observation is irrelevant in this respect: the supply shocks responsible for these developments during the mid-1970s and early 1980s can be traced more directly to events in the industrialized and oil-producing countries than to unintended side effects of domestic monetary, fiscal, and exchange-rate policies.

² An empirical assessment of the effects of devaluation on output growth in several developing and industrialized countries, both through the cost of imported inputs on the supply side and through exports, imports, and expenditures on the demand side, is provided in Gylfason and Schmid (1983), Gylfason and Risager (1984), and Gylfason and Radetzki (1985). See also Donovan (1981), Khan and Knight (1985, Table 5), and Edwards (1986).

3 CREDIT POLICY, OUTPUT, AND THE BALANCE OF PAYMENTS: A FORMAL FRAMEWORK

Before proceeding to the empirical analysis of some of the issues just reviewed, it may be useful to present a simple macroeconomic model, which can be viewed as an extension of the monetary balance-of-payments model of Polak (1957) and as a variation on the more general model of Frenkel, Gylfason, and Helliwell (1980). The present model differs from the Polak model primarily by emphasizing the supply side of the economy, which allows simultaneous determination of output and prices, in contrast to the focus of the Polak model on nominal income. The present model also differs from the Frenkel-Gylfason-Helliwell model both by treating the volume of domestic credit as a factor of production, along the lines suggested by McKinnon (1973) and Taylor (1981), and by abstracting from domestic financial assets other than money.

Because the model is concerned with the influence of money and credit on economic activity, the analysis of aggregate demand stresses the monetary side of economic transactions rather than the real side; the market for goods and services need not be considered explicitly. Accordingly, interest rates play no role, nor is an explicit distinction made between monetary and fiscal policy. In view of the emphasis of the analysis on the short run and its application to less-developed countries, the model also suppresses for simplicity many elements of economic behavior that would be relevant in the longer run and in countries with well-developed financial markets: (a) because rigid controls of capital transactions are widespread in developing countries and exchange rates are generally held fixed by the monetary authorities, financial capital movements and exchange rates are assumed to be exogenously determined; (b) money wages are treated as exogenous in the short run; (c) the velocity of circulation of money is assumed to be constant; and (d) the effects of expectations and wealth on both aggregate demand and supply are ignored. Finally, it should be noted that the model does not include all of the supply-side effects discussed in Chapter 2, focusing instead on the demand and supply effects of changes in the stock of domestic credit outstanding.

It should be evident that the model is by no means intended to provide a realistic description of the economies of the developing countries under study. It serves merely to highlight in the simplest possible way the macroeconomic implications of the conflicting views of credit policy reviewed in Chapter 2, and to provide general guidelines for the empirical analysis of Chapter 4.