INFLATION
— and —
GROWTH
— in —
CHINA

Chapter 3

Fiscal Deficits and the Inflation Process

Arnold C. Harberger

Costs of Inflation

There is no doubt that high rates of inflation impose serious costs upon the affected economies. Much of the literature on this subject is couched in terms of the "inflation tax." Let me make clear from the outset that, in my opinion, the true costs of inflation have been far larger than those captured by any existing measure of the inflation tax and manifest themselves in terms of the reduction in the level of efficiency at which the economy functions. The issue is that a rise in the price of any commodity can have two possible interpretations: (a) it can signal a rising relative scarcity or desirability or real cost of that commodity, or (b) it can simply indicate that the commodity in question is being affected by an ongoing process of inflation. For an economy to operate efficiently, economic agents must respond to signals of type (a), producing more of the goods whose relative desirability has increased, using more of the inputs that have become relatively more abundant, and so on. In a world in which the stability of the general level of prices is more or less ensured, economic agents can be sure that the price movements they perceive are essentially type (a) signals. They can therefore respond relatively quickly and reorder their input and output mix in an efficient way. But in a situation of ongoing inflation, there can be considerable uncertainty as to whether any given price movement is of type (a) or type (b). The higher the rate of inflation, the more likely it is that economic agents will have difficulty distinguishing price signals reflecting genuine changes in relative desirability or scarcity (signals of type (a)) from price signals of type (b), which simply reflect the ongoing inflationary process. Thus, they will often fail to perceive true relative price changes in a timely way and may also often mistakenly interpret a rapid inflationary adjustment of a particular price as if it were a type (a) signal.

The mistakes of failing to perceive true type (a) signals and of misinterpreting as type (a) signals some fraction of purely inflationary price movements have consequences both for the efficiency with which the economy operates and for its rate of growth. The consequences for efficiency are obvious, as resources respond less to signals, whether of higher or of lower prices. The consequences for growth are less obvious but probably more important. They stem from the fact that improvements in total factor productivity (TFP) have probably been the most important single source of economic growth, worldwide, at least since the industrial revolution. TFP improvements can be viewed as increases in output per unit of "total inputs" or, equivalently, as reductions in the real cost of producing a unit of output. I believe that the latter vision brings greater insight into the growth process, for it leads one to sense how the growth process depends on the success of businessmen and managers in their perpetual search for ways of reducing real production costs (or of making at the same cost a product that has a higher value in the market). In this search, relative prices play an absolutely critical role. If these prices are poorly or mistakenly perceived, fewer ways of reducing real costs will be discovered and implemented, and real economic growth will accordingly be slower.

Theoretical models of inflation often tend to pass over these matters, for it is very easy for theorists to think of inflation as a process in which all prices rise together, as if marching in an army. If the real world behaved this way, then people could interpret the movement of the average commodity price as reflecting inflation (plus perhaps a component that is due to the average rate of TFP improvement) and then consider that any price rising faster than the average represented an increased real cost (higher relative scarcity), whereas any price rising slower than the average represented reduced real costs (higher relative abundance). That is, they could interpret all relative price movements as signals of type (a). But, in real-world inflations, individual prices adjust at widely different rates—some rapidly, some slowly, some steadily, some in discrete jumps. Thus, even if there were no movements of type (a) at all, or if they were relatively minor, one would observe relative price changes owing to the different speeds and patterns of adjustment of individual prices to an ongoing inflationary process. It is these relative price changes that are confused with those of type (a) and that thereby impede the efficient operation of the economy and slow down growth by slowing the advance of total factor productivity.

Confusion concerning the nature of relative price changes grows as the rate of inflation increases. With zero or very low inflation, economic agents perceive relative prices clearly. With a middling degree of inflation, in contrast, they perceive them only partially. And, finally, with galloping inflation, such as we have seen in several Latin American countries, the "true," as distinct from the purely inflation-related, movements of relative prices are perceived very poorly.

Financing Government Deficits

Worldwide, the most important underlying source of major inflations has been the financing of government deficits with newly created money. But, let it be clear from the beginning that there have been some important inflations in which the government was not directly involved, and in which it was business firms, rather than the public treasury, that were the principal beneficiaries of excessive money creation. Likewise, there have been many cases of government deficits that were financed in noninflationary ways.

These observations simply reflect the fact that there is no simple, straightforward, mechanical link between government deficits on the one hand and inflation processes on the other. The deepest roots of inflation are invariably monetary in nature, although the expectations of economic agents can on the one hand exacerbate and on the other hand sometimes help alleviate inflationary processes. Thus, governments can maintain large fiscal deficits for short periods and moderate fiscal deficits for long periods of time without necessarily setting in motion a major inflation.

The easiest way to obtain a clear understanding of the phenomenon of inflation is by studying the link between money and inflation. People hold money for various purposes, but it is quite correct to say that, whatever the purpose, it is the *real* value of money that comes into play in serving that purpose. This gives rise to the familiar demand equations for money (M) in which real, desired cash balances $(M/P)^d$ are expressed as a function of real income (y), of the rate of inflation (π), of various interest rates (r_1, r_2, r_3, etc.), and perhaps of other variables.

At any given time, one can in principle avoid inflationary pressures by guiding the monetary and banking system so that it provides an amount of money M that, when combined with the prevailing price level P, gives people real cash balances that are quite close to their desired ones $(M/P)^d$.

If, starting from low or zero inflation, we provide an increment to M that gives people more money than they want to hold, they will start spending their excess balances, thus triggering a potential inflationary spiral. Once an inflation process is under way, economic agents typically hold lower real cash balances than they would under a stable price level. But, for each level of inflation π there typically corresponds an "equilibrium" level of real cash balances—a level that would tend to be maintained as long as the rate of inflation, along with other key determinants of $(M/P)^d$, remained constant.

Thus, if the rate of inflation stood at 25 percent, and the other relevant determinants remained constant, the money supply could be expanded each period by 25 percent, and the real equilibrium of the economy would be maintained. What would be happening is that the inflation would be eroding the value of "old" cash balances, say, from a real value of 1,000 (= 1,000/1.0) to a real value of 800 (= 1,000/1.25). Because the real value of 1,000 represented an equilibrium level of desired real cash balances, people would attempt to rebuild their nominal balances to 1,250 in order to restore their net value to the equilibrium level of 1,000.

In adding 250 to their nominal balances, people are refraining from some types of spending that they would otherwise do. This is sometimes represented by introducing into the demand functions for most types of goods and services a term in $(M^s - M^d)/P$. If people have more money on hand than they desire to hold, they spend some of the excess. If they have less, they refrain from spending so as to rebuild their real cash balances to the desired level. One way of looking at the so-called inflation tax identifies it as the amount of resources released to other potential users in this process.

In a very simple, even simplistic, version of inflation tax modeling, the banking system prints ΔM new money, which it makes available to the government. The government spends this, directly or indirectly, on real resources. These resources in turn are released by the economic agents as they try to add πM to their initial nominal balances in order to keep their real balances constant. In this simple case, the holders of cash balances are the taxpayers, and the government is the "recipient" of the full amount of the tax. That is to say, the portion of the government deficit that is financed by recourse to the banking system is, in this example, equal to the inflation tax that is borne by the holders of cash balances.

Credit to the Productive Sector

The above example is not adequate for analyzing real-world inflations, principally because the government is not the only recipient of bank credit. For most countries, the IMF's *International Financial Statistics* divides the recipients of bank credit into "public sector" and "private sector." For China, the division is between "central government" and "other domestic transactors." I will assume here that the latter term refers mainly to productive enterprises and will deal with them in the same way that I would treat private sector enterprises in a typical Western country.

The key to the inclusion of such enterprises into the picture is the balance sheet of the consolidated banking system, which includes the central bank plus the deposit money banks (including, in China, the specialized banks and the rural credit cooperatives).

Consolidated Banking System Balance Sheet

Assets	Liabilities
Net foreign assets	Currency (central bank notes)
Credit to government	Demand deposits
Credit to productive sector	Time and savings deposits
*Miscellaneous assets	*Capital and surplus
	*Miscellaneous liabilities

For most countries, the starred items are relatively minor, so that one can think of a broad concept of money like *M2* (currency plus demand deposits plus time and savings deposits = money plus quasi money) having as its rough counterpart on the asset side of the balance sheet "net foreign assets" plus "credit to government" plus "credit to the productive sector."

Let us now suppose an inflation of 25 percent a year, in which the government receives all the proceeds of the inflation tax. For simplicity, net foreign assets are assumed to be equal to zero at all times.

Table 1 shows two scenarios of a steady inflation at 25 percent a year. In each case, the inflation is assumed to be in progress at the initial year shown (year zero). The real cash balances prevailing then (1,000) are assumed to be the equilibrium amount of such balances corresponding to a 25 percent inflation rate. Bank credit is initially supposed to be divided equally between the government and the productive sector.

In panel A, it is assumed that, starting with period 1, the government is the recipient of the full inflationary expansion of credit. This implies that nominal credit to the productive sector remains constant, which in turn implies that its real credit is going down at the rate of 20 percent a year. By the end of period 4, the productive sector in this scenario is receiving only 40 percent of the real credit that it had received in period zero.

Contrast this with the scenario of panel B. Here the increments of nominal credit are divided between the government and the productive sector so as to keep their initial proportions unchanged. In this case, real credit to the private sector remains constant throughout the exercise.

Most experienced economic observers consider the scenario of panel B to be vastly preferable to that of panel A. The reason is that they perceive that real bank credit is a significant input into the productive process. Curtailing such credit "artificially," that is, as a consequence of the government's monopolizing the proceeds of the inflation tax, has serious economic costs—the more so in the scenario described in panel A, where continued inflation, together with constant nominal credit to the productive sector, will simply drive the real value of such credit to lower and lower levels with each passing year.

We thus clearly prefer panel B to panel A. But note that the government now gets only a fraction (here one-half) of the proceeds of the inflation tax. So in order for panel B to prevail over panel A, the size of the government deficit to be financed by recourse to monetary expansion can be only half as great for the same rate of inflation. If the deficit is to be of the same size, a higher rate of inflation will be required if the government "shares" the tax with the productive sector than if it does not. Even so, most experienced observers would rather see a higher inflation rate with "sharing" (i.e., with a scenario like that of panel B) than a lower inflation rate "without sharing" (i.e., with a scenario like that of panel A), but with the same government deficit being financed.

Table 1. Nominal and Real Money and Credit Under 25 Percent Inflation

	Nominal Credit to Government	Nominal Credit to Productive Sector	Nominal *M2*	Price Level	Real Credit to Government	Real Credit to Productive Sector	Real *M2*
A. Government Receives Inflation Tax Proceeds							
Year 0	500.0	500.00	1,000.0	1.0	500.0	500.0	1,000
1	750.0	500.00	1,250.0	5/4	600.0	400.0	1,000
2	1,012.5	500.00	1,562.5	25/16	680.0	320.0	1,000
3	1,453.1	500.00	1,953.1	125/64	744.0	256.0	1,000
4	1,941.4	500.00	2,441.4	625/256	795.2	204.8	1,000
B. Government Shares Inflation Tax with Productive Sector							
Year 0	500.00	500.00	1,000.0	1.0	500.00	500.00	1,000
1	625.00	625.00	1,250.0	5/4	500.00	500.00	1,000
2	781.25	781.25	1,562.5	25/16	500.00	500.00	1,000
3	976.50	976.50	1,953.1	125/64	500.00	500.00	1,000
4	1,220.70	1,220.70	2,441.4	625/256	500.00	500.00	1,000

Note: The inflation is assumed to be an ongoing inflation of 25 percent a year. Real cash balances of 1,000 are assumed to be the equilibrium level of such balances, corresponding to an actual and expected rate of inflation equal to 25 percent a year.

Interest Rates and Inflation

The easiest way to understand the examples presented so far is to assume that no interest is paid on money holdings and that borrowers from banks pay only a modest service charge, perhaps disguised as interest. Under these assumptions, the inflation tax is paid by the holders of *M2*, the government receives command over the resources released in the case of panel A, and the government and the productive sector share command over the resources released in the case of panel B.

Suppose now a different situation in which borrowers pay interest on their borrowings, and holders of money receive interest on their *M2* balances. If money holders receive an interest rate r_2, one might say that the net inflation tax on money holders is $(\pi - r_2)$. I do not feel that this is a useful way to approach the problem, however. Rather, I prefer to consider that the inflation tax is always $\pi M2^d$. This is always the amount of resources that the holders of money must release to maintain the real value of their desired cash balances. This definition links the inflation tax with the rate of inflation (π) itself rather than with the increase in the money supply. To link it with the latter would create complications because, as we shall see, it is usually true, particularly in a growing economy, that there is some increase in money supply that is fully compatible with the maintenance of price stability ($\pi = 0$).

One should realize also that inflation has a range of effects that impinge on borrowers and lenders throughout the economy and that are closely related to the inflation tax. In the first instance, inflation produces a benefit to all borrowers and a cost to all lenders on any instruments of debt that are expressed in nominal terms. When new loans are made in situations where interest rates are free to adjust, one can say that the interest rates set by the market on such loans are the sum of an expected real rate of return plus an expected rate of inflation. If, then, the actual rate of inflation turns out to equal the "expected" rate, lenders are fully compensated for the inflation, and borrowers receive no special benefit.

To take an example that is closely related to our earlier case but that is for that very reason highly unrealistic, suppose that holders of *M2* receive an interest rate of 37.5 percent a year, which is the composite effect of a real interest rate of 10 percent and an expected inflation rate of 25 percent (1.375 = 1.1 x 1.25). In this case, the holders of *M2* would, on the one hand, pay an inflation tax of 250 on initial balances of 1,000 but, on the other, would be fully compensated for this through the interest rate they received; indeed, in addition to being compensated for inflation they would receive a real return of 10 percent on their *M2* balances. Simultaneously, suppose that the recipients of bank credit (both the government and the productive sector) paid an interest rate of 40 percent, representing an expected inflation rate of 25 percent plus a real interest rate of 12 percent (1.40 = 1.12 x 1.25). The fact that they were the "beneficiaries" of the inflation tax would then mean very little, because they would be fully paying for that benefit through the nominal interest rate on their loans.

In the above example, the actual inflation of 25 percent is exactly equal to the expected inflation built into the interest rate on loans. This is highly unrealistic, as is the assumption that the holders of all of *M2* are fully compensated for inflation through the interest paid on their deposits. In the real world, no interest at all is paid on cash, and little or no interest is paid on demand deposits, even in countries with some amount of ongoing inflation. Holders of *M2* are compensated for inflation, if at all, on their holdings of time and savings deposits. So we have different interest rate treatment for different components of *M2*.

My suggestion is that when we analyze an inflationary situation, we should consider $\pi M2$ to be the inflation tax. This can be broken down into πC, where C is currency, $\pi(M1 - C)$, where $(M1 - C)$ is demand deposits, and $\pi(M2 - M1)$, where $(M2 - M1)$ is time plus savings deposits. Here we see that each component of the inflation tax is paid by holders of *M2*, and we can calculate separately the interest rates received on the three components—zero for C, probably very little for $(M1 - C)$, and possibly little, but possibly quite a significant amount for $(M2 - M1)$. Obviously, the interest compensation will never match the actual inflation tax for all three categories. This is one very good reason for keeping it separate.

A second reason is that, although the inflation tax itself is intimately connected with the expansion of the money supply, the impact of inflation extends to all debtors and all creditors throughout the economy as long as the instruments of debt are expressed in nominal currency units. Thus, as we look to the effects of inflation on debtors and creditors, we should properly extend our view beyond simply monetary instruments and go to such items as treasury bills and notes, commercial paper, the receivables and payables of productive enterprises, as well as medium- and long-term bonds. Inflation causes vast amounts of arbitrary redistribution between creditors and debtors on all these different types of instruments. The redistribution in question will be partially, fully, or more than fully offset by the nominal interest rates that were set at the time the instruments were issued. But almost certainly this offsetting will be highly arbitrary, because markets can rarely foresee future inflation rates very well, and the debt instruments outstanding at any single point in time were issued at many different previous points in time.

I believe that the magnitude and extent of arbitrary redistribution connected with inflation constitute an additional important reason why governments should make every effort to keep inflation rates low. But I also believe that these redistributions are too complicated, too pervasive throughout the economy, to help us very much as we analyze the process of inflation itself. For that, I believe that the correct monetary magnitude to watch is *M2*, and that the analysis of changes in *M2* should be matched to changes in its counterparts on the asset side of the balance sheet of the consolidated banking system—namely, net foreign assets, bank credit to the government, and bank credit to the productive sector.

Inflation and Credit to the Productive Sector

At the beginning of this paper, I spoke of how inflation impedes the efficient operation of the economy and interferes with economic growth. The causal connection emphasized was the way in which inflation blurs the price signals to which economic agents respond. This blurring of signals impedes the achievement of economic efficiency and hampers the search for innovations that produce economic growth through the reduction of real costs.

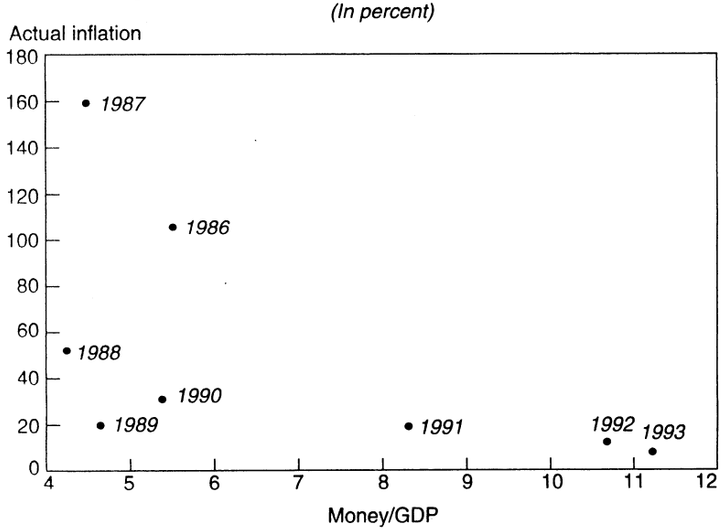
Here, I shall focus on a different causal connection, which runs as follows. The higher the rate of inflation, the lower the level of real money balances that people will want to hold. The lower the real money balances (the principal liabilities of the consolidated banking system), the lower the amount of domestic credit that the banking system can extend. Even with constant real credit to the government sector (say, in relation to GDP), this will mean that, the higher the rate of inflation, the lower the amount of real credit to the productive sector (again, say, in relation to GDP). Lower credit to the productive sector is likely to affect economic growth directly by reducing that sector's level of investment. It is also likely to have a negative impact on the efficiency

with which the economy operates to the extent that credit, by "lubricating" the economic machine, helps it operate more efficiently.

The causal chain thus goes from higher inflation to lower real money balances and, because of the latter, to lower total real domestic credit. This is likely to mean lower real credit to the productive sector as well, the more so if the inflation was caused by the financing of fiscal deficits through the banking system. Readers should keep this causal chain clearly in mind when they consider the relationship between inflation and private sector credit from various countries. This relationship is not a "behavior equation," like a demand or supply curve. Rather, it summarizes the operations of the system as a whole. Lying behind it, of course, is the behavior equation of the demand for real money balances, whose negative slope with respect to the rate of inflation is the underlying explanation for the negative effect of inflation on real domestic credit.

Figures 1–12 illustrate the relationships in question. Each figure shows the relationships between an inflation variable on the one hand and, on the other, four monetary/credit variables derived from the consolidated balance sheet of the banking system: money, money plus quasi money, total domestic credit, and domestic credit to the private sector. To calibrate these latter variables, they are expressed as fractions of contemporaneous GDP. The data are drawn from two episodes: Mexico during 1986–92 and Chile during 1976–83. In Figures 1–4, the relationships are shown for the Mexican episode, with the inflation variable being the contemporaneous change in the consumer price index. The inflation rate is measured as $\pi_t = (\bar{p}_t - \bar{p}_{t-1})/\bar{p}_{t-1}$, where $\bar{p}_t$ is the average of the consumer price index during year t.

Figure 1. Mexico: Money/GDP and Actual Inflation
(In percent)



The data for the money and credit variables are derived from the consolidated balance sheets of the banking system at the end of each quarter. The figures for December of year $t-1$ and those of March, June, September, and December of year t are averaged to obtain an average value corresponding to year t. To eliminate the bias that inflation induces toward giving a larger weight to later quarters—simply because all nominal series tend to grow with inflation—each end-of-quarter figure on a money or credit variable was deflated by the consumer price index for the corresponding month, yielding a figure for the real stock of money, the real stock of money plus quasi money, the real stock of domestic credit, and so on. The average of these real stocks was then taken and expressed as a ratio to the real GDP of the year in question, making sure that the price index used to deflate the monetary and credit series had the same base year as that of the national accounts.

In Figures 1–4, the series thus derived are expressed as a function of π_t. It can be seen that there is indeed a negative association between the rate of inflation and each of the variables in question. In Figures 5–8, an "expected inflation" variable is used in place of the actual rate of inflation π_t. Economic theory says that the relevant determinant of real money balances is the expected rate of inflation. The problem is that this variable is by nature subjective. Much evidence

Figure 2. Mexico: Money + Quasi Money/GDP and Actual Inflation
(In percent)

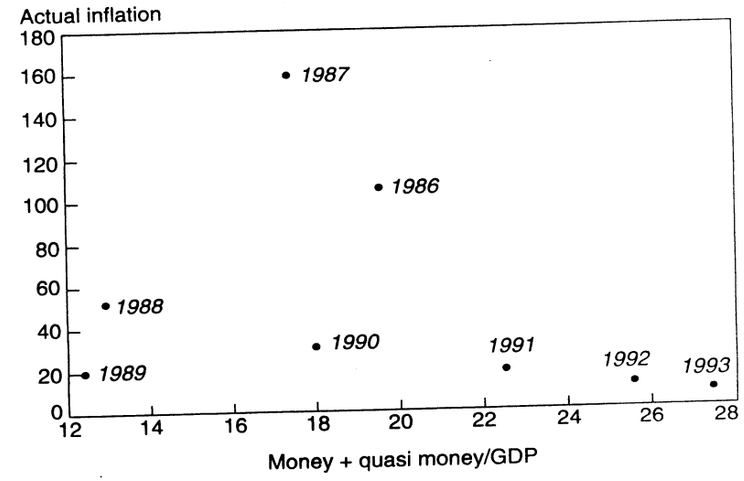


Figure 3. Mexico: Domestic Credit/GDP and Actual Inflation
(In percent)

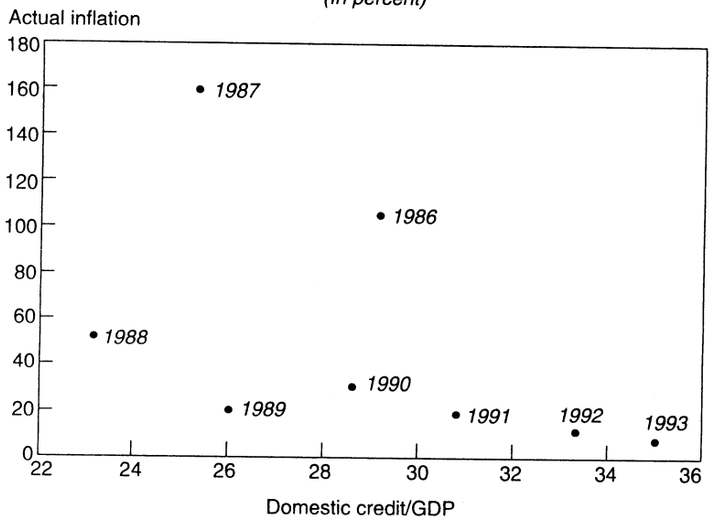
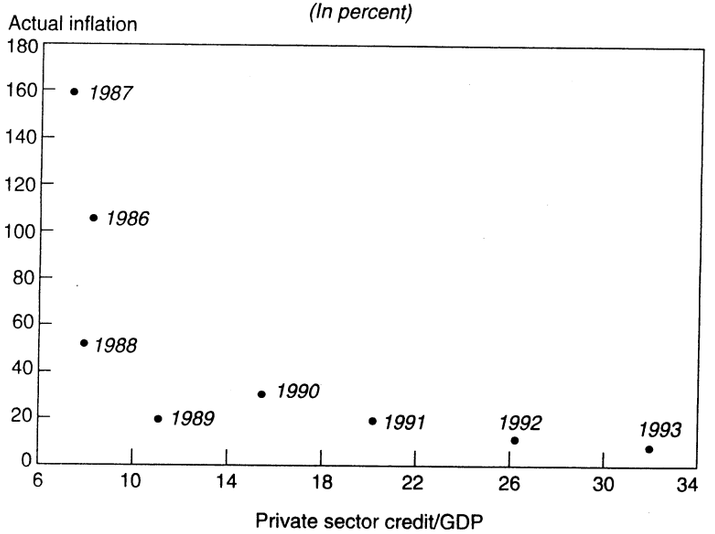


Figure 4. Mexico: Private Sector Credit/GDP and Actual Inflation
(In percent)



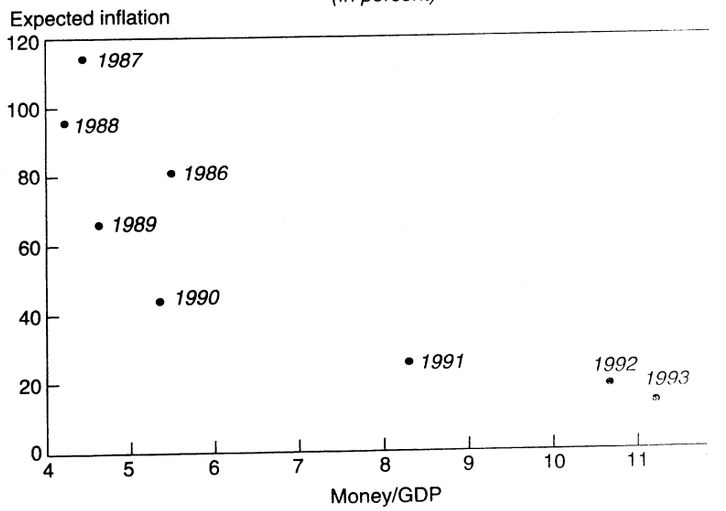
from the past, however, supports the idea that people develop their expectations on the basis of their experience. But experience becomes less useful and informative the further it recedes into the past; from this phenomenon comes the idea of giving less weight to information that is less recent. The formation of expectations based on declining weighting patterns of observed variables has a long history in economics. Many economists incorporate this approach by experimenting with the data to see what weighting pattern gives the best fit. I prefer to impose an arbitrary but reasonable weighting pattern. This frees the analysis from the dilemma of dealing with different weighting patterns for, say, expected inflation depending on which dependent variables one is trying to explain.

My position is that no precise definition of an expected inflation variable can ever be truly "correct," but that it makes sense to believe that people take past as well as current information into account in forming expectations. To illustrate such a process, I use simple, arbitrary weights that I believe are reasonable. In the present case,

$$\pi_t^e = .4\ \pi_t + .3\ \pi_{t-1} + .2\ \pi_{t-2} + .1\ \pi_{t-3},$$

where π_t is the rate of expected inflation prevailing in year t. It draws on information from the year t and the three preceding years, in the manner shown. I believe that its merits are demonstrated by the improvement in "fit" of the relationships shown in Figures 5–8 compared with those in Figures 1–4.

Figure 5. Mexico: Money/GDP and Expected Inflation
(In percent)



similar improvement can be observed for Chile, as one moves from π_t to π_t^e as the relevant inflation variable. To avoid excessive length, Figures 9–12 present only the results obtained using the expected inflation variable.

Various points should be made concerning the figures. In the first place, not all countries will show so clearly the points I am emphasizing in this section. While I believe my line of argument is fully supported by economic theory and contains no basic flaws, one must nevertheless recognize that other forces are at work in the real world, above and beyond those being emphasized here. Thus, in countries whose economies are just in the process of being monetized, a force is present leading to higher and higher demand for real cash balances, year by year. Functions such as those depicted in Figures 1, 5, and 9 will be shifting to the right in such cases.

Then there is the effect of paying interest on cash balances in general, but mainly on time and savings deposits. As was already hinted, if the interest paid on bank deposits is high enough, the negative effects of inflation on the holding of such deposits can be overcome. My hypothesis is that the interest paid on time and savings deposits is the main reason why, for many countries, the relationship between money/GDP and the rate of inflation is tighter than that for money plus quasi money/GDP.

In addition, one must realize that the connections between π_t or π_t^e on the one hand and domestic credit or productive sector credit on the other hand really stem from the accounting relationships of the consolidated balance sheet

Figure 6. Mexico: Money + Quasi Money/GDP and Expected Inflation
(In percent)

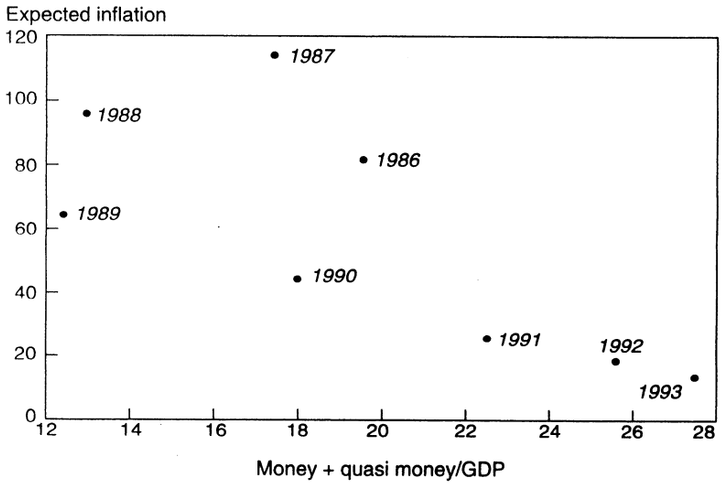


Figure 7. Mexico: Domestic Credit/GDP and Expected Inflation
(In percent)

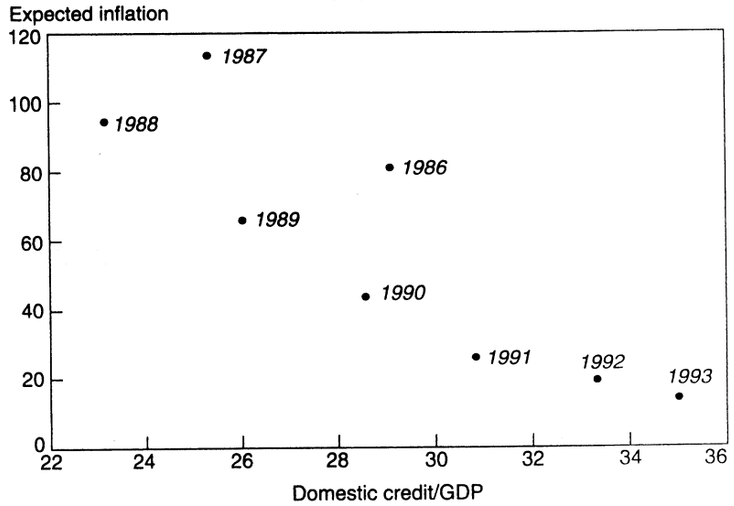


Figure 8. Mexico: Private Sector Credit/GDP and Expected Inflation
(In percent)

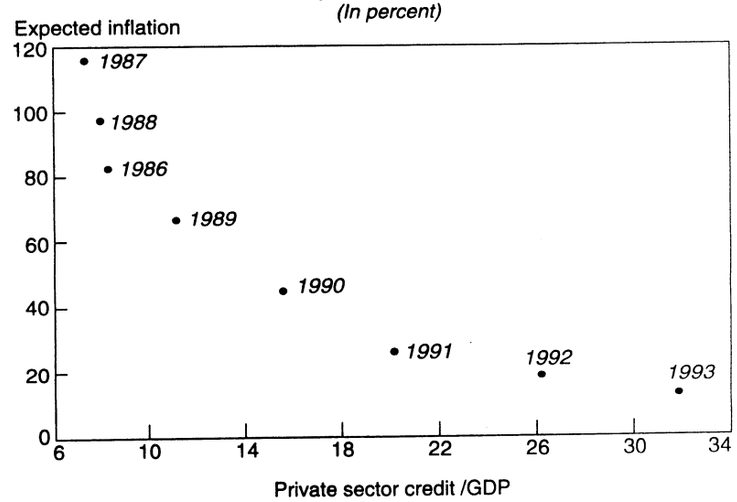


Figure 9. Chile: Money + Quasi Money/GDP and Expected Inflation
(In percent)

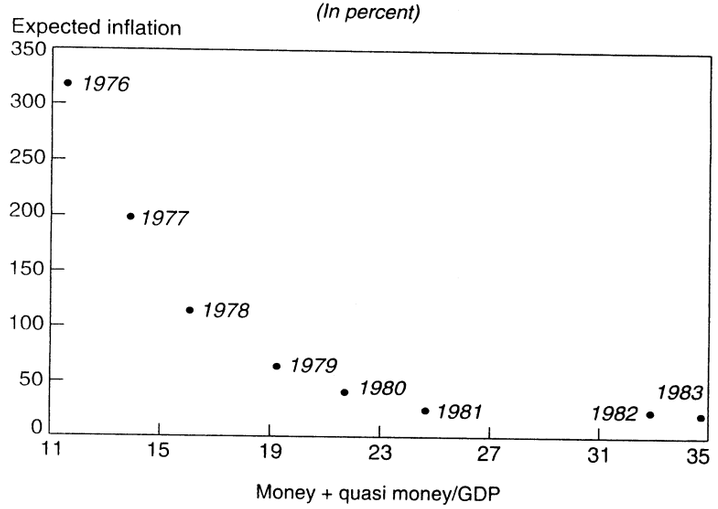
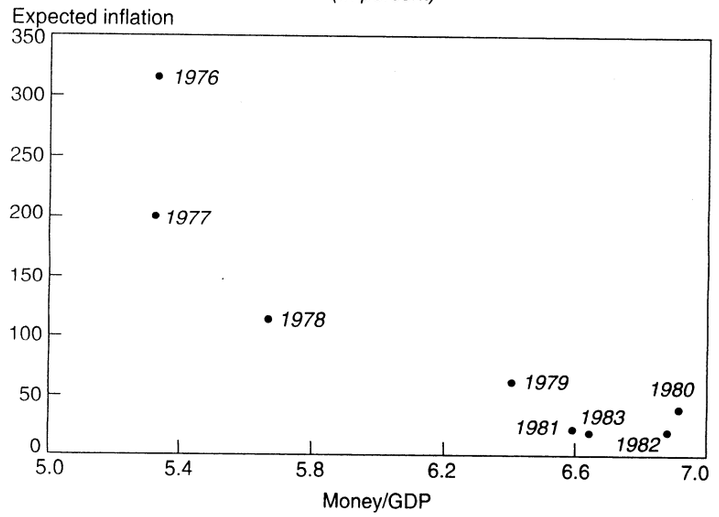


Figure 10. Chile: Money/GDP and Expected Inflation
(In percent)



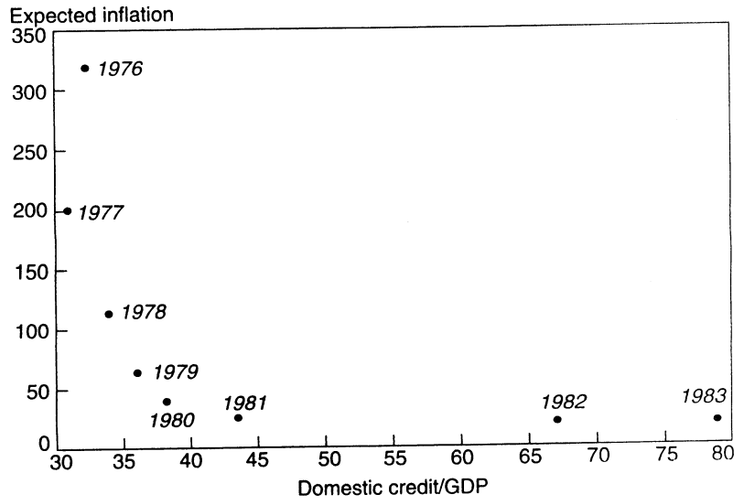
of the banking system. It can and sometimes does happen that other balance sheet items may be changing through time in such a way as to distort or offset the expected negative relationship between credit variables and the rate of inflation. Three important ways in which this relationship can be offset should be mentioned: (1) net foreign assets may vary substantially (even becoming negative), thus permitting the credit variables to move in a different direction from the monetary variables, (2) the government may turn from being a net recipient of credit from the banking system to being a net lender to it, and (3) the banking system may expand its own capital, and/or may issue long-term bonds, providing it with the means to expand bank credit beyond what would be permitted by the prevailing levels of money and quasi money.

None of these variables really destroys the relationships being explored in this section, because changes in the rate of inflation do not by themselves have the effects described in (1)–(3) above. What can happen, however, is that one or another of these effects can occur side by side with an inflation process, thus obscuring empirical regularities of the types shown in the figures.

Inflation and Credit to the Productive Sector: The Real Bills Doctrine

There is in the history of economic thought an important controversy concerning the relationship between bank credit and inflation. One side of this

Figure 11. Chile: Domestic Credit/GDP and Expected Inflation
(In percent)

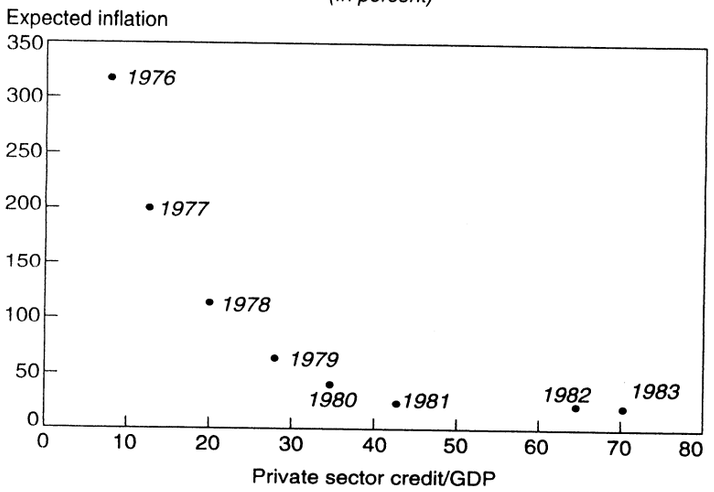


controversy asserts, with varying caveats and qualifications, that credit expansion is not inflationary as long as the credit is used to finance productive activities. This sums up what is known as the *real bills doctrine*. It has been shown, time and again, to be false.

As is the case with many technical concepts, this doctrine was far more noxious in the hands of politicians, bankers, and businessmen than in the hands of technical economists. The real bills doctrine was music to the ears of these three groups, for it gave a certain legitimacy to massive credit expansion. One simply did not have to worry about possible inflationary consequences, the doctrine said, as long as the credit went to finance productive activities.

I do not know which is the easiest way to demonstrate that the real bills doctrine has no sound basis. The proof that I myself have found the most convincing runs as follows. In a typical country, the broadly defined money supply (*M2*, or money plus quasi money) will typically amount to between 20 percent and 100 percent of a year's GDP. It is about 60 percent in the United States, 80 percent in Germany, 20 percent in Argentina, and 30 percent in Mexico. The productive capital stock of a country typically has a value of between 200 percent and 400 percent of a year's GDP. Hence, if loans were made to finance the full value of this stock, they would amount to between 2 (200 percent/100 percent) and 20 (400 percent/20 percent) times the money supply. But bank credit is limited, by the discipline of the consolidated balance sheet, to an

Figure 12. Chile: Private Sector Credit/GDP and Expected Inflation
(In percent)



amount not much greater than the money supply (*M2* ≈ domestic credit plus net foreign assets minus the banks' own capital and reserves and possible long-term borrowings).

Suppose we are in a country in which desired money holdings (*M2*) are equal to 50 percent of a year's GDP, and the starting point is an equilibrium situation with no inflation, in which *M2* and domestic credit are equal (assume net foreign assets = the banks' capital and reserves). Now let the banking system expand credit to 80 percent of last year's GDP, with a corresponding expansion of *M2*. The trouble is that people will not be willing to hold these increased cash balances. As they spend them, they will drive up the price level, and with it nominal GDP. A new equilibrium will emerge when the price level has gone up by 60 percent. If GDP was initially 1,000 and the money supply 500, the new equilibrium will be at a nominal GDP of 1,600 and a money supply of 800. With 60 percent inflation, *real* GDP is still 1,000, and the *real* money supply is still 500.

In the above example, no account is taken of the additional product stemming from the newly financed assets, which may be realistic in the sense that the real bills doctrine speaks of the financing of productive assets, not of the financing of brand-new productive assets. It may also be realistic in the sense that the loans may go to finance investments that are still under construction during the period in question. At the other extreme, it is assumed that all of the increment of 300 in bank credit was used to finance new productive assets and that these new productive assets started generating, in their first year, a real return of 25 percent. This would cause real GDP to grow to 1,000 + (300 x .25) = 1,075, which in turn would mean that the new equilibrium price level would be not 1.6 (= 1,600/1,000) times the old one, but instead would be 1.49 (= 1600/1075) times the old one. That is, instead of the increment of 60 percent in bank credit setting in motion a 60 percent inflation, it would be setting in motion one of 50 percent.

Thus, making full allowances for the use of incremental credit to finance new investments, and making a generous allowance for the real productivity of such investments, one still finds that merely financing productive investments is no guarantee against inflation. The right way to think about inflation is in terms of the real cash balances that people are willing to hold. The real bills doctrine is of no use in this process.

Although the real bills doctrine has been the most powerful myth supporting the massive expansion of credit to the productive sector, it is impossible to confirm that the real-world cases of inflations that were principally fueled by credit expansions to the private sector were primarily motivated by this doctrine. However, it is possible to show that such inflations have in fact existed, even though most real-world inflations have stemmed from fiscal deficits.

I draw my evidence from Latin America simply because I am most familiar with the recent economic history of that region. Consider Brazil during 1965–72. In 1965, credit from the consolidated banking system to central and

local governments combined amounted to 2,884 billion cruzeiros; by 1972, this figure was –2000 billion cruzeiros. That is to say, the government sector had paid off its full debt to the banks and by 1972 held deposits that were greater than its loans. Meanwhile, credit to the private sector had shot up from 5,583 billion to 88,000 billion cruzeiros, while money plus quasi money had gone from 9,347 billion to 94,000 billion cruzeiros. The consumer price index meanwhile rose from 57 to 268. There can be no doubt that this was an inflation whose source lay in credit expansion to the private sector, not to the Government.

A similar case prevailed in Uruguay from 1982 to 1991. In 1982, bank loans to central and local governments amounted to 16.6 million pesos; by 1991, this figure was –5 million pesos. Once again, the government sector had in the interim paid off its debts (in net terms) to the banks. But over the same period productive sector credit (including public sector enterprises) jumped from 97 million to 11,500 million pesos. Money plus quasi money, over the same interval, leapt from 72.5 million to 10,748 million. There can be little doubt that in this case the expansion of productive sector credit fueled an inflation that caused the price level to multiply by more than 100 over less than ten years.

These examples are anomalies in the history of inflations, but they call attention to the critical role of monetary expansion in creating inflation and to the virtual certainty that any major monetary expansion will have its counterpart somewhere on the asset side of the consolidated banking system's balance sheet.

"Parking" the Deficit: Stories from Central America

Central America has traditionally been a bulwark of prudent, conservative monetary management. For decades, most Central American countries were able to maintain a fixed exchange rate with the U.S. dollar. Panama is the extreme example, with the parity fixed in the country's constitution. The remaining countries fixed their parities by policy but were also able to maintain them for long periods of time. Costa Rica broke earliest with this tradition, resembling in this regard its South American more than its Central American neighbors.

What is notable about the region as a whole, however, is how it successfully maintained its monetary stability for many decades, and then, rather abruptly, became unable to do so. Nicaragua had an exchange rate of 1.41 cordobas to the dollar until 1979; El Salvador maintained a rate of 2.5 colones to the dollar until 1986. Guatemala maintained a rate of 1 quetzal per dollar, also until 1986. And Honduras managed to maintain its rate of 2 lempiras per dollar until 1991.

Table 2 shows how the fiscal situation changed in El Salvador, Guatemala, and Honduras before the devaluation crises that caused them to depart from

their respective prior fixed exchange rates. In each of these countries, the deficits were substantially under control in the 1960s. They first began to exceed 1 percent of GDP in Guatemala and Honduras during the 1970s. Then, in all three countries, the fiscal deficits leapt to about 5 percent (or more) of GDP in the early 1980s. El Salvador and Honduras covered these increased deficits mainly by increasing their foreign borrowing, while Guatemala relied mainly on borrowing from the banking system. Still, even El Salvador and Honduras had significant recourse to the banking system, thus sowing the seeds for their respective devaluation crises.

The point I would like to make here is that Central American fiscal deficits became significant quite some time before the actual crisis was felt. What happened was that different ways were found to "park" (i.e., "place" or "finance") the deficit in a noninflationary way. A government's first priority "parking place" for the deficit is probably abroad—by selling instruments of debt to foreigners. Then, one can turn to the domestic nonbank market, as Guatemala did in 1975–79. Most of these countries did not borrow in net terms from the domestic market, but did borrow in gross terms, more than compensating for these borrowings by lending to the private sector under various government programs. This is why, for most years, foreign borrowing plus borrowing from the banking system exceeded the fiscal deficit. (In other words, the fiscal deficit is defined in such a way as to exclude certain government lending operations.)

Other ways of parking deficits include (1) selling bonds to the social security system; (2) raising the reserve requirements of banks, and permitting (or requiring) them to hold government bonds as part of these reserves; (3) reducing the support that the government gives to public sector enterprises, re-

Table 2. Government Deficits and Their Financing

	Fiscal Deficit/GDP	Foreign Borrowing/GDP	Borrowing from Banking System/GDP
El Salvador (devalued from 2.5 to 5.0 colones per dollar in 1986)			
1965–69	.008	.009	.005
1970–74	.008	.016	.005
1975–79	.004	.012	.010
1980–84	.050	.038	.019
Guatemala (devalued from 1.0 to 2.5 quetzales per dollar in 1986)			
1965–69	.009	.008	.001
1970–74	.017	.012	.008
1975–79	.015	.006	—
1980–84	.045	.006	.033
Honduras (devalued from 2.0 to 5.4 lempiras per dollar in 1991)			
1965–69	.007	.008	—
1970–74	.018	.019	.007
1975–84	.066	.049	.022
1985–89	.050	.037	.017

quiring them to eliminate their own deficits or else cover them through their own borrowing; and (4) passing certain functions (like price supports for agriculture) from the government to the central bank, thus eliminating them as components of the central government's own deficit. Some of these devices are more cosmetic than real; that is, they "hide" the deficit rather than park it. Yet countries often engage in these activities, which can postpone the time when a given substantial "true" fiscal deficit finally has its full impact on the money supply and hence on the rate of inflation.

The above types of government actions are, of course, in addition to those that the banking system itself can take to blunt the effect that added lending to the government might otherwise have on the money supply. Thus, for example, Guatemala, between 1979 and 1985, in the process of "working up" to its devaluation crisis of 1986, experienced an increment of some 1,650 million quetzales in *M2*, of which fully 1,600 million were accounted for by added banking system lending to the Government. What happened, of course, was that other parts of the consolidated balance sheet were being squeezed, in either absolute or relative terms. In this case, net foreign assets fell by Q 1,034 million, going from Q 700 million to –Q 334 million. At the same time, while credit to the Central Government was multiplying by 17, banking system credit to the private sector was barely doubling in nominal terms. What occurred was a real-world scenario much like that of panel A of Table 1 above, where the Government simply monopolized the full increment of banking system credit.

Real-World Fiscal Inflations

Some twenty years ago, I started examining real-world inflations, with the idea of drawing some salient characteristics from actual experience. At the time, information about post–World War II experience was quite limited. Indeed, one could compile a fairly long list of 28 "important" developing countries whose inflationary experience pretty much mirrored that of the 16 major industrial countries outside the Communist bloc. When I defined acute inflation as episodes of one or two (or more) years during which rates of inflation reached 80–100 percent or more, I found only eight episodes: Argentina (1974–76), Bolivia (1952–59), Chile (1971–76), Indonesia (1965–68), Paraguay (1951–53), Korea (1950–55), and Uruguay (1965–68 and 1971–74). When I defined as chronic inflation cases of inflation rates of over 20 percent for at least five consecutive years, I could identify only four cases: Argentina (1949–74), Brazil (1957–76), Chile (1952–70), and Uruguay (1958–65).

I knew from both theory and observation that there was a close causal relation between price inflation on the one hand and monetary expansion on the other. But I also knew from experience that this connection was familiar to those who presided over and ran the central banks of the above countries during the listed episodes. The question then arose of *why* exaggerated rates of monetary expansion had occurred.

In an exercise I called "looking beyond the money supply," I defined three key variables:

β = net increase of banking system credit to the goverment (public sector) expressed as a fraction of GDP for the period;
γ = banking system credit to the public sector as a fraction of total bank credit; and
λ = rate of increase of total (nominal) bank credit.

These variables proved to be very useful in discriminating between cases of chronic and acute inflation on the one hand and the cases of the "normal" developing countries on the other, whose experience with price stability was similar to that of the industrial countries.

At that time, I also isolated an intermediate group of inflationary countries—those that had experienced "devaluation crises," or a devaluation of at least 20 percent, preceded by at least four years of exchange stability. Using this definition, I found 29 devaluation crises in 24 countries, during 1957–76. In the period leading up to the crisis, these countries also had values of β, γ, and, to a limited degree λ that were notably higher than for the control group of stable countries. These results were published in 1981.[1] It was my great good fortune to be able to return to this subject, some years later, and to deal with totally new evidence. The new acute inflation cases were Argentina (1982–84), Bolivia (1982–84), Brazil (1980–85), and Israel (1980–85). The new chronic inflation cases were Chile (1977–81), Ghana (1980–85), Greece (1979–85), Iceland (1980–85), Mexico (1980–85), Nicaragua (1979–85), Peru (1980–85), Portugal (1974–84), Sudan (1979–84), Tanzania (1980–84), Turkey (1977–85), Uruguay (1976–85), Yugoslavia (1979–84), and Zaïre (1980–84). Although the "control group" of stable countries was less numerous for the later period (because inflation was generally more widespread), a dozen developing countries met the criteria for stability. The later study was published in 1988.[2]

Table 3 summarizes the results of the two studies measured in terms of the median values of β, γ, λ and for each group of countries. The later study isolated 18 totally new devaluation crises, taking place in 15 different countries. The results of these are compared with the results of other

[1] Arnold C. Harberger, "In Step and Out of Step with the World Inflation," in *Development in an Inflationary World*, ed. by M. Flanders and A. Razin (New York: Academic Press, 1981).

[2] Arnold C. Harberger, "World Inflation Revisited," in *Economic Effects of the Government Budget*, ed. by E. Helpman, A. Razin, and E. Sadka (Cambridge, Massachusetts: MIT Press, 1988).

groups, in both the older and the newer studies, and are summarized in Table 4.

Table 3 shows clearly that the acute inflation countries engaged in riskier behavior than the chronic inflation countries, which in turn engaged in riskier behavior than the control group of stable countries. This was true for all three parameters in both studies, with only one minor exception. The following lessons can be drawn from these findings. (1) The government's borrowing new money from the banking system, if carried beyond a certain point, exposes the country to greater inflation risk, the greater the amount of the borrowing; (2) having a high fraction of outstanding government debt in the total portfolio of the banking system itself exposes the nation to a higher risk of inflation; and (3) increasing the rate of expansion of total bank credit adds to the risk of inflation.

In Table 4, a similar exercise is carried out for the devaluation crisis countries. The key parameters were measured both in the year of the devaluation and in the year before the devaluation, with a view to determining if the signs of impending crisis could be discerned from evidence observed before the crisis was at hand. The answer to this is clearly yes. It is virtually impossible to distinguish the results from the year prior to devaluation from the results for the devaluation year itself.

The comparison of the devaluation crisis countries with the other groups is also interesting. It appears that, with respect to the "credit to the government

Table 3. Inflation Indicators: Acute Inflation Countries, Chronic Inflation Countries, and Stable Developing Countries

Date of Study	Acute Inflation Countries		Chronic Inflation Countries		Stable Developing Countries[1]
Median values of β					
1981	.037	>	.02	>	.005
1988	.133	>	.06	>	.013
Median values of γ					
1981	.468	>	.32	~	.25
1988	.344	~	.39	>	.25
Median values of λ					
1981	1.200	>	.34	>	.13
1988	2.377	>	.47	>	.21

Note: Criterion for approximate equality designation (~): difference should be less than .01 for β, less than .10 for γ and λ.

β = Net increase in banking system to the public sector, expressed as a fraction of GDP.

γ = Public sector bank credit/total bank credit.

λ = Net increase in total bank credit/beginning-of-year level of total bank credit.

[1]Control group.

Table 4. Inflation Indicators: Chronic Inflation Countries, Devaluation Crisis Countries, and Stable Developing Countries

Date of Study	Chronic Inflation Countries		Devaluation Crisis Countries: Year of devaluation		Devaluation Crisis Countries: Year before devaluation		Stable Developing Countries[1]
Median values of β							
1981	.023	~	.018	~	.019	>	.005
1988	.054	~	.058	~	.050	>	.013
Median values of γ							
1981	.320	~	.350	~	.350	>	.250
1988	.390	~	.450	~	.490	>	.250
Median values of λ							
1981	.340	>	.150	~	.170	~	.130
1988	.470	>	.330	~	.250	~	.210

Note: Criterion for approximate equality designation (~): difference should be less than .01 for β, less than .10 for γ and λ.

β = Net increase in banking system to the public sector, expressed as a fraction of GDP.

γ = Public sector bank credit/total bank credit.

λ = Net increase in total bank credit/beginning-of-year level of total bank credit.

[1]Control group.

sector" variables, β and γ, the devaluation crisis countries are similar to the chronic inflation countries. With respect to the rate of expansion (λ) of total bank credit, however, they are more like the control group of stable countries. This is understandable when it is recognized that the devaluation crisis countries were by criterion of selection actually maintaining stable exchange rates in the four years prior to their respective crises.

The data in Tables 3 and 4 demonstrate very clearly the close linkage between a particular kind of budgetary indiscipline on the one hand and inflation on the other. I refer to the indiscipline of financing government deficits by borrowing from the banking system.

Estimating Prudent Levels of Government Borrowing from the Banking System

In the previous section, β was defined, and it was shown how countries with higher levels of β fall prey more easily to the inflationary disease than do countries with more moderate levels of β. In this section, I shall try to establish a level of β that is unlikely to create inflationary (or other) problems for a country, working in terms of the balance sheet of the consolidated banking system. The government's pressure on the system is represented by the amount it borrows from that system during a given period. The amount of monetary expan-

sion the system can undertake, in contrast, depends on the growth in the demand for real cash balances $(M2)^d$.

The first step, therefore, is to determine the amount of monetary expansion (Δ^*M2) that is in principle compatible with zero inflation. Considering that the growth rate (g) of real GDP is the principal force (other than inflation) influencing the demand for real cash balances,

$$(\Delta^*M2/M2) = \in g,$$

where $\in$ is the income elasticity of demand for $M2$.

The increment of money, Δ^*M2 ($= \in gM2$), if actually implemented, will have as its counterpart increments of net foreign assets, of credit to the government, and of credit to the productive sector. There is no economic theory that explains exactly the optimum distribution of banking system assets among these three categories. But experience has shown (see the analysis of γ in the previous section) that the country is more vulnerable to inflation when γ (defined earlier as the fraction of total banking system credit represented by credit to the government) is large. The critical point is to choose a prudent maximum level for γ (call it γ^*). This means

$$\Delta^*CG = \gamma^* \in gM2,$$

where CG represents the balance sheet item "credit to the government" (or to the government sector). Δ^*CG is the prudent limit to the increment of such credit in a given period. For simplicity of exposition, I shall define γ^* as the prudent maximum ratio $CG/M2$. Expressed in relation to Y, Δ^*CG leads to

$$\beta^* = (\Delta^*CG/Y) = \gamma^* \in g\,(M2/Y).$$

Thus, for example, for a growth rate of 6 percent, an income elasticity of demand for $M2$ equal to 1.0, a ratio of 0.5 for $M2/Y$, and a maximum prudent share of government obligations in total banking system assets (γ^*) equal to one-third, we would have

$$\beta^* = (1/3)(1.0)(.06)(0.5) = .01.$$

This figure ties in well with the actual values of β that have characterized successful noninflationary experiences. And it makes a convenient rule of thumb—governments are treading on potentially dangerous ground (in terms of vulnerability to inflation) when they draw from the banking system more than 1 percent of the GDP that is currently being produced.

Analyzing Banking and Monetary Systems

This section attempts to draw one significant conclusion from the analysis of this paper as a whole: the great importance of working with the consolidated balance sheet of the banking system.

I cannot praise too highly the genius of those who first designed the presentation of monetary and banking data in the IMF's *International Financial Statistics*. There, from the very outset, they presented the so-called Monetary Survey, which represents the consolidated banking system of which we have been speaking in this paper. Money and quasi money are the principal liabilities of this consolidated system, and its principal assets are net foreign assets plus various categories of domestic credit.

This breakdown should be the focus of monetary analysis in general and of the study of inflation in particular. I must speak out strongly against the tendency, evident in much contemporary macroeconomic literature, to concentrate on the monetary authorities rather than on the consolidated banking system as a whole. This literature focuses on the central bank's liabilities (variously known as high-powered money, or the monetary base, or, in *IFS* terminology, reserve money) and on the actions of the central bank as it extends credit, accumulates foreign reserves, and so on.

To me, it is both shortsighted and naive to concentrate attention on the central bank in this way. It is far too easy for monetary and credit expansion to take place in proportions far different from the movements of the monetary base. Table 5 gives a few examples of movements within the span of a single decade. Many examples can be found in which $M2$ (money plus quasi money) and H (the monetary base) even move in opposite directions over periods as long as a year or more.

The issue is which of these two variables is the more relevant and economically interesting. To me, there can be no doubt that $M2$ is a far more vital and meaningful variable than H. I believe that those who focus on H either take a very narrow view of the central bank as the entity for analysis and of H as its principal liability, or else they take the naive position that dealings between the commercial banks and the public can simply be netted out because (in most countries) both are part of the private sector.

Neither of the above arguments stands up under close examination. I have no quarrel with recognizing that H is, to a certain degree, a direct instrument of central bank policy control, but that does not mean that it should be the principal focus of the central bank authorities, or of those who study and try to assess and interpret central bank policy. The objectives of the central bank incorporate the price level, the level of economic activity, the functioning and solvency of the banking system, the adjustment process whereby the economy seeks and finds its real exchange rate equilibrium, the stability and viability of credit markets, and so on. Looking at the balance sheet of the consolidated banking system brings one much closer to these matters than looking at the

mere balance sheet of the central bank. Put another way, *M2* may or may not itself be an objective of central bank policy, but even if *M2* is looked upon as an instrument, it is an instrument that is much closer to the deeper objectives of central bank policy than is *H*. My own view is that, if something serious goes wrong at the level of the balance sheet of the consolidated banking system, that is part of the *responsibility* of the central bank, even though it can operate only indirectly on the components of the consolidated balance sheet. The items on the central bank's own balance sheet should be looked on mainly as instruments to allow the bank to fulfill its deeper responsibilities.

It is easy to deal with the practice of simply eliminating the commercial banks from the purview of one's analysis by consolidating them with the rest of the private (or productive) sector. This practice can be defended if one is dealing with the analysis of the long-term real growth rate of the economy or some similar topic, but certainly not when one is considering such problems as inflation, recession, the real exchange rate, and so on. Here the monetary system as a whole is the natural unit of analysis, and any attempt to "consolidate out of existence" *M2*, domestic credit, and the like can only lead to trouble. The evidence in Table 5, which could be multiplied many times over, clearly supports this position.

In sum, both those within the central bank, who are trying to guide its policy with prudence and wisdom, and those outside the central bank, who are trying to understand and judge its actions, are well advised to focus their primary attention on the consolidated banking system, looking on the variables directly pertaining to the central bank as no more than instruments at its disposal as it tries to fulfill its broad responsibilities to the economy and to society as a whole.

Table 5. Money Plus Quasi Money, (*M2*)/Monetary Base (*H*)

Country		Year	*M2/H*	Peak/Trough
Indonesia	P	1992	7.68	2.23
	T	1985	3.45	
Korea	P	1985	6.62	2.32
	T	1979	2.85	
Malaysia	P	1987	5.28	1.43
	T	1978	3.68	
Norway	P	1988	11.59	1.72
	T	1980	6.72	
Spain	P	1980	13.59	4.25
	T	1985	3.20	
Thailand	P	1989	7.69	1.87
	T	1979	4.12	

P = peak of the ratio *M2/H*.
T = trough of the ratio *M2/H*.

Fiscal Deficits

Throughout this paper, I have emphasized that the link between fiscal deficits and inflation arises with respect to that portion of the deficit that is financed through the banking system and, even more particularly, through money creation. Vast sums of money have been raised throughout the world that have gone to finance fiscal deficits in essentially noninflationary ways. One way of describing the entire class of noninflationary approaches to financing deficits is to say that the funds were raised "in the capital market."

In some ideal sense, one can envision a monetary authority charged with maintaining real macroeconomic equilibrium and price stability successfully pursuing these goals through its influence on the consolidated banking system. Side by side with this monetary system, one can imagine a capital market in which treasury bills, commercial paper, medium- and long-term government bonds, plus the stocks and bonds of business firms are transacted. The picture that emerges is a fairly close replication of reality for the great bulk of industrial countries today.

Taking a small additional step, one can add to the above picture the idea of an independent central bank (and banking system). The easiest definition of independence in this context describes a central bank and banking system that cannot be required to buy government obligations. With an independent central bank defined in this way, the government would *have to* go to the capital market in order to obtain financing for its deficits. In the capital market, it would compete with other demanders for funds (provincial and local governments, business firms, and possibly foreign demanders) for the available supply of loanable funds.

A standard picture of this sort of capital market would have a rising (positively sloped) supply curve of loanable funds from domestic sources, possibly supplemented by another rising supply curve of funds from abroad. The prices in terms of which these supplies are expressed are the real interest rates on each particular type of loan or instrument, but the exercise we have in mind is not the movement of any single real interest rate but the equilibrium movement of the whole structure of rates in response, say, to an increased demand for loanable funds on the part of the government.

With such a capital market, increased government demand for loanable funds will lead to a rise in the relevant pattern of interest rates, drawing out additional supplies from the various sources of funds, but also, and very important, displacing demand from the productive sector of the economy. In this process, funds are bid away from the productive sector of the economy, and investment there ends up being lower than it would otherwise be. This process of productive investment being displaced as a consequence of government demand for funds has come to be known as "crowding out." Quite obviously, the economic growth of a country will suffer to the extent that crowding out takes place.

The degree of crowding out depends greatly on the nature of the rising supply curve of funds from abroad. If it is very elastic, increments in demand for funds will largely be met by new supplies from abroad, and there will be little crowding out. If the curve is very inelastic, and the local supply of loanable funds is also, most of the funds raised by the government will come at the expense of displaced productive investments.

For some countries well integrated into the world capital market, the supply curve of foreign funds has a relatively modest upward slope. In such countries, even when the government does not directly sell its bonds abroad, the sale of bonds in the home market sucks in capital from abroad to such an extent that most of the deficit is effectively financed in this way.

The smaller the degree of integration of a country with the world capital market, the less elastic the supply curve of foreign funds that it faces is likely to be, hence the higher the degree of crowding out caused by government deficits. In the last decade or two, several Latin American countries, most recently Mexico, have experienced real interest rates as high as 2 or 3 percent a month. Such interest rates signal a situation in which the world capital market cannot be counted on as a ready source of incremental supplies of funds.

I believe that a great many developing countries, including China, are in a situation in which incremental government borrowing mainly displaces investment in the productive sector of the economy. These in turn can be divided into two groups—those with a quite substantial internal capital market operating side by side with the banking system, and those in which the banking system is the main mechanism through which savings are mobilized and allocated. In cases where the nonbank capital market is not developed, or is relatively small, there is no serious issue concerning nonbank financing of government deficits—there simply is nowhere else for the government to turn. Crowding out here takes place within the banking system, as government competes with other borrowers for loanable funds.

In cases where there is a significant nonbank capital market, but where the incremental contribution of foreign funds to the financing of the deficit is likely to be small, crowding out is still present but can take place both in the banking system *and* in the nonbank capital market.

For those lucky countries that face quite elastic supply curves of foreign funds, crowding out is not an immediate problem. Going into debt now postpones the moment when citizens must "pay a price" for today's government expenditure. This aspect is *always* present when the government goes into debt and can easily give rise to deep moral issues connected with passing fiscal burdens on to future generations. So-called populist governments in many different countries have taken the easy road, according benefits to their citizens far beyond their capacity and the citizens' willingness to pay. Although they can succeed temporarily in this "miracle" simply by accumulating debt, ultimately the price must be paid—a fact that up to now has doomed populist governments to failure.

There is no doubt in my mind that the course of wisdom and responsibility for governments the world over is to rely as little as possible on deficit financing of any kind. This allows maximum scope for the channeling of the available savings of the economy into productive investments, and it maintains the integrity of government and the society vis-à-vis future generations.