

HIGH INFLATIONS AND THE FINANCIAL SYSTEM*

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The economic prospects of Latin America are seen with increasing optimism by the international business community following the economic reforms carried through in a number of countries in recent years. Privatizations and the lowering of trade barriers, including the formation of MercoSur and NAFTA, have received much favorable attention. But most important have been the monetary stabilizations and the fiscal reforms that have made them possible.

Together with Daniel Heymann (1994) of the UN Economic Commission for Latin America (ECLAC), I have recently completed a book on High Inflation which is due to appear later in the year.¹ These high inflations did serious damage to the economies that had to suffer through them, retarded their growth, and left a legacy of weak financial institutions and underdeveloped capital markets. In my talk today, I will try to describe and explain the role that high inflations played in "the lost decade".

Imagine going around the world asking ordinary people who you meet in the streets about the inflation rate in their respective countries. In most countries, you will get an answer couched in terms of so many percentage points *per year*. That is a *moderate* inflation. In some countries, the answers will be in percentage points *per month*. Those are countries in the grips of *high inflation*.

There are two other answers you might encounter. One is: "Don't know. *I haven't thought about it.*" That is the answer you should expect in a country fortunate enough to have *low inflation*. The "haven't thought about it" answer states the proper goal of monetary policy.² Rarely, the answer might be "Who

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¹ See Heymann and Leijonhufvud (1995).

² The issues of whether inflation should be forced further down than at present, whether the goal of monetary policy should be 0 percent inflation and, if so, by which measure, are currently the subject of lively discussions among central bankers and economists of a number of countries. But it will never be possible to construct a price-index such that it can provide an agreed-upon basis for a precise numerical criterion. The proper goal for monetary policy, therefore, should simply be a rate of change of prices low enough that people do not have to pay attention to it.

knows?" or "It's impossible to know". That unfortunate country is in *hyperinflation*.

From these different answers to the question one immediately learns two things:

First, people in high inflation countries cite inflation-rates in percent per month because per annum figures have become meaningless to them (except for historical purposes). Quoting inflation as a monthly rate reveals a shortening of time perspective that comes to pervade planning, contractual agreements, and financial commitments.

Second, to understand inflation and its effects on an economy, you need to focus on what is possible, and what impossible, for people to know – and, therefore, how far into the future they can plan with some confidence in what they know. Models of correctly anticipated inflation are of limited relevance.

Hyperinflations are dramatic but necessarily short-lived. High inflations, on the other hand, can be sustained for many years. The market system – if you have one – continues to work after a fashion. People work and people eat. But the economy does not function well and, in particular, it does not grow as it should.

It is helpful to put the high inflation syndrome in a *monetary regime* context. The term "regime" is used by economists to refer to (the systematic components of) the behavior-pattern of the policy-making authorities and the corresponding expectations that this engenders in the public. The question is to what extent the two sectors come to understand each other's behavior and to what extent one can predict the actions or reactions of the other. In any social context, the outcome of action depends on the (conditional) behavior of others. To the monetary authorities, the outcome of action depends on the expectations of the public. But expectational variables are on the whole not directly observable, so policymakers must infer their values. The public, on its side, forms expectations (of the inflation rate in prospect, for instance) on the basis of inferences about the policy strategies of the authorities.

In this interaction, the reliability of the inferences made by one party will depend indirectly on the reliability of those made by the other. The public may, for instance, not be able to make unique inferences with regard to the policy strategy of the government if, over some period of time, monetary policy has not been sufficiently systematic.³ Private agents may then form a variety of

³ Perhaps they are faced with policymakers who believe that *unanticipated* action is the essence of effective policy!

"theories" about the government's likely behavior. The collective state of expectations is then incoherent and, since people know their expectations to be unreliable, it is also likely to be volatile and to change in ways that policymakers will not be able to make reliable inferences about.

A high inflation regime becomes a vicious circle of this sort, an unreliable and unpredictable environment in which entire categories of economic actions become so risky that people largely cease to engage in them. The circle is vicious also in that it offers no easy escape. Stabilization is difficult.

Let me discuss the government side of the high inflation regime first. Once a country is mired in high inflation, its government is apt to find itself trapped in a most unenviable financial situation. It is not necessarily the case that these governments deliberately spend "too much". But they tax "too little". The legislated rates of income taxes or value added taxes may be roughly in the same range as in Western European countries, for instance. But they are shot through with exemptions and loopholes and are widely evaded. Collection is erratic, inefficient, and sometimes corrupt. Even were this not the case, they are collected late – and when inflation is well into double digits per month, paying late is almost as good as never. Consequently, these general taxes only yield perhaps 3-5 percent of real GNP each – hardly enough to support a "nightwatchman state", much less a 20th century state. Much government revenue will stem from an accumulation of excise taxes imposed on "easy targets" in one emergency after another. Often set at very high rates, they individually yield little but cause significant distortions. In brief, a ramshackle tax-structure and badly functioning tax collection system. A revenue system that is a "product of human action, but not of human design."

On the other side of the ledger, one finds no systematic and comprehensive budget process to allocate planned expenditures rationally and to control the actual ones. Government departments, nationalized industries, and other organizations operate under "soft budgets".⁴ We will return to this particular problem below.

Several strands of causation connect the problems just mentioned and run from these underlying inconsistencies of fiscal policy to the resulting high and erratic inflation. Space will only allow a quick enumeration with a minimum of commentary.

- (1) Once the perception becomes widespread that the government is politically unable either to increase taxes or systematically to curb spending, the

⁴ In several historical cases, the public finances have been further complicated by the need to allocate a significant portion of government revenues to extraordinary expenditures (wars, reparations, foreign debt service). When these expenditures are due to the actions of a previous government, now viewed as illegitimate, the lack of popular support for them becomes a difficult political obstacle to fiscal reform.

demand for government bonds is undermined. When debt can no longer be marketed in significant volume, the government cannot rely on debt-management to smooth the monetary injections resulting from day-to-day variations in the cashflow deficit.

- (2) If the authorities can neither make ends meet nor issue debt, monetary financing becomes the only remaining option. The central bank then ends up covering not only the "permanent" deficit, but also all the transitory disturbances to the treasury's cash flow. The economy is then exposed to a variable, high frequency monetary impulse.
- (3) When the public comes to anticipate fiscal and monetary instability, it responds by reducing money demand and adapting pricing practices to this unstable environment.
- (4) The immediate consequences are that the base of the inflation tax (M/P) erodes (so that the government's ability to repay debt by issuing money is itself put into question) and that the high and variable rates of money growth get ever more quickly, and more strongly, transmitted to prices.
- (5) High and variable inflation, in turn, will reduce real tax revenues and make them more erratic. Moreover, volatile inflation disrupts credit transactions, including those which involve the government itself. And it makes systematic budgeting all but impossible.
- (6) Go back to (1) without passing GO....

Once enmeshed in this high inflation syndrome, it becomes exceedingly difficult for policy-makers in the government to take a "long view" and embark on a course of action, such as tax reform, that would promise long-run benefits but incur various costs in the short run. With little credit in either domestic or international markets, policy deteriorates into day-to-day emergency management. The result of all the attempts "to make the best of a bad situation from one day to the next" are time-inconsistent policies that are all but impossible for the private sector to predict.

The government's predicament consists of this entire web of interconnecting problems. There is not a single causal strand which, if cut, will provide escape. The web has to be attacked at several points at once, with a comprehensive program. Stabilization, to repeat, is not easy.

Obviously, we cannot discuss the entire fiscal problem complex in any depth. But it will be useful to elaborate a bit on one particular aspect of the high inflation government's fiscal predicament and for two reasons. One is that it is an aspect which, although not totally overlooked, often has not been given the

attention that it deserves. The other reason is that this particular problem of the government teaches us something also about similar difficulties in the private sector. The problem in question is that of controlling expenditures and of enforcing accountability.

This problem really starts with the *lack of a structured budgeting process*. Recall that our criteria for putting an inflation in the "high inflation" class was that people thought and talked about it in terms of monthly percentage rates and considered annual figures *meaningless*. This means, among other things, that budget projections for periods as long as a fiscal year also become meaningless under high inflation conditions. The allocation of expenditures, therefore, cannot be settled for the coming year in one comprehensive political negotiation. Instead, the *de facto* budget is constantly revised without the benefit of parliamentary legitimation, and various political pressure groups negotiate their demands sequentially (rather than simultaneously). Governments find such sequential negotiations difficult to handle for each successive interest group feels itself "the last to be compensated" and does not have to moderate its demands because of countervailing pressures from other groups. So, not only will the allocation of expenditures be inefficient and inequitable but total spending becomes extremely difficult to control.

Even if budget plans could have been drawn up in a systematic manner, the central government is often unable effectively to enforce budget constraints on its own departments, on provincial and local governments, or on public utilities and nationalized industries. These subordinate units are themselves not able to project money expenditures and receipts forward for more than some months at best, and they can with considerable reason hold the central government responsible for the erosion and unpredictable variations in their real revenues. State and local governments (to use North American terminology) collect their own tax revenues with a lag and see their real value, therefore, as prey to the level and variability of the inflation rate. To the extent, moreover, that they depend on "federal" revenue sharing, the real purchasing power of what they receive will vary similarly — when it is not suddenly curtailed in the course of some intermittent stabilization attempt by the national government. Public utilities and nationalized industries are often subject to price control and thus unable to manage the relationships between their costs and the prices they are allowed to charge.

In such circumstances, these units do in effect violate their budget constraints — and get away with it. Claiming *force majeure*, they demand and receive supplementary appropriations from the national governments. These requests often come with short notice and carry the threat of seeing essential services interrupted. The private sector quickly learns to play the same game. This inability to control budgets means that there is much uncertainty within the government itself about the future course of money creation, and thus of inflation,

even in the short term. *The government itself in effect, does not know what its monetary policy will be.*

Janos Kornai (1980) first developed his theory of behavior under so called "soft budget constraints" to explain a whole range of phenomena prevalent in centrally planned, socialist economies.⁵ Much of Kornai's theory, however, applies more generally whenever we deal with systems or parts of systems *where the ability to pay (or promise) money is not the sole legitimate way in which resources may be rightfully appropriated.*

High inflation makes strict financial control of the public and quasi-public sectors impossible. But there are many socially legitimate objectives that are met by politically allocating budgets to the relevant agencies which still have to be (more or less) met when budgets cannot reasonably be enforced. For instance, the government will be held responsible for keeping the schools and hospitals running and, of course, it must keep the police on and the army off the streets.

But once public agencies and enterprises begin to operate on the understanding that they will not be held to pre-specified budgets as long as "legitimate" reasons can be adduced for running in the red, the soft-budget syndrome is established. It, in turn, feeds back on the finances of the central government making its deficit, the rate of money creation, and the inflation increasingly difficult to control and to predict.

There is a more general lesson in this. I have just discussed how, in the public sector, *monetary* budgeting is part and parcel of the mechanisms by which activity levels are controlled. When money fails as an instrument for calculating plans and for enforcing accountability, the immediate consequences are not hard barter budgets but soft money budgets and the ultimate results are the coordination failures and inefficiencies just described. Now, inefficiencies in the public sector seldom surprise either economists or businessmen. We will not automatically infer that the profit-motivated private sector is similarly affected. But large private firms, for instance, have a variety of internal *principal-agent* relationships, similar to those in the public sector, in the monitoring of which monetary accountability plays a crucial role. The "softening" of accountability means that cost control, for example, is weakened here as well.

Firms encounter great difficulties in adapting their accounting procedures to the high inflation environment in such manner as to provide a reliable basis for management decision-making. Some large Brazilian firms construct indices of the input prices of their various products. If the revenue from sales more than suffices to buy the consumed inputs back again, they have some assurance that

⁵ See Kornai, (1980, 1986).

the activity is profitable. (The procedure provides no assurance that cost is minimized⁶ and it is not likely to be of much help in determining optimal output rates). The transparency of corporate reports must also suffer. If analysts are unable to extract reasonably reliable information on net earnings in "real" terms, trading in equities can hardly take up the slack from the disappearing markets in money-denominated securities (of which more below).

The external, market relationships between profit-maximizing firms are a different matter, particularly if both sides are also disciplined by competition. Nevertheless, in high inflations, the contracts normally governing customer-supplier relationships also become less effective in regulating the outcomes to the parties involved. Our "pure" monetary theory has trouble finding a convincing reason for money to be used in general equilibrium. But when money gets out of order, society proves unable to devise substitute control mechanisms that come at all close in effectiveness to the monetary controls which have evolved over centuries.

The standard analysis of the costs and consequences of inflation concentrates on the various distortions caused by the so called inflation tax. By "inflation tax" we mean the loss of purchasing power on money balances held by the private sector, purchasing power that is in effect appropriated by the government (without the explicit assent of the governed) when it prints new money. Once again, a summary of more or less desperate brevity:

- i) The social costs of the inflation tax are far from trivial at the inflation rates we are talking about. The amount of time and effort spent economizing on cash balances is really very large.
- ii) The incidence of the inflation tax tends to be strongly regressive. I stress this because the view that anti-inflationary policies hurt the working class has been a popular one in the U.S. and in Europe and is still very much ingrained in the literature. In Brazil, for instance, the inflation tax falls heavily on the poor whereas the well-to-do find ways to manage.
- iii) The impairment of the banking and intermediary system belongs under the inflation tax heading as well. High inflation reduces the demand for

⁶ In inflations, efficiency in production becomes a rather unimportant objective for the firm in any case. Managing the firm's cash-position and hedging the short-run inflation risk becomes vital. Engineers and marketing people have to move over and make room at the corporate top for finance experts. While this is a consequence of inflation that is almost impossible to quantify, it is almost surely one of the socially most costly. Cf., my 1974 paper "Cost and Consequences of Inflation," reprinted in Leijonhufvud, *Information and Coordination*, New York: Oxford 1981.

deposits to a small fraction of what is normal in a stable system.⁷ At the same time, governments often raise reserve requirements to very high levels. Consequently, very little private sector intermediation takes place. The basic function of collecting small savings to finance commerce and industry does not get performed. Nonetheless, employment in this sector usually balloons. There appears to be two reasons for this. First, running the payments system at TOP SPEED and helping everyone to minimize their holdings of money turns out to be labor-intensive. Second, genuine cost-control becomes very difficult and it is all too easy to let it slip since the banks continue to "make money" (in a purely nominal sense) even as, underneath, their real capital positions erode.⁸

Turning to some of the effects of high inflation that have received less attention than the inflation tax, we should focus not on the *rate* of inflation but on the *uncertainty* about future nominal prices which, under these conditions, "blows up" very rapidly with distance from the present. The effects on the financial system are dramatic.

In contracting, this kind of uncertainty leaves people three options:

- i) they can attempt to control the added uncertainty by means of contingency clauses,
- ii) they can replace long-term agreements with a sequence of shorter contracts, or
- iii) they can simply avoid certain categories of transactions.

I will take these three in order.

i) In practice, the first option means indexing. We observe its use in those kinds of time-spanning agreements where renegotiations are particularly costly, that is, in housing rentals, recurrent customer-supplier relationships and, in particular, labor contracts. Since in a high inflation, expected errors in predicting the price level over periods of a couple of months are large, there is practically no alternative to indexing for contracts as "long" as these two categories tend to be.

⁷ Taking Argentina as an illustration, M_2 was 15.8% of GDP in 1980. After a decade of high inflation, it amounted to only 4% of GDP in 1990, a year that had two outbreaks of hyperinflation. Two years of successful stabilization only returned it to 6.3%

⁸ The number of banks and intermediaries in Argentina went from 469 in 1980 to 208 in 1992. The total number of branch offices was (approx.) 4100 in 1980, peaked around 4800 in mid-decade, and had come down to 4000 by 1992.

There are several problems with indexing, however. One of them, obviously, is the choice of the price-index basket when several proxies for "the" price level are available. In connection with the recent Brazilian effort to introduce the so-called "Real Unit of Value", it was reported that some three dozen different contract indices were in more or less widespread use in Brazil. As an example, one large corporation was said to use *eleven* different indices in its various contractual relationships.

The reporting lag is another complication. Indexing is backward-looking in the sense that the purchasing power of payments changes when the inflation rate fluctuates. There are, of course, prices (such as the exchange rate) that are almost continuously measured, but "dollarization" of contracts has the disadvantage that the real exchange rate tends to be extremely volatile in high inflations. For the most people, maintaining constant purchasing power over a basket of foreign goods is of little use if, in so doing, their command over the domestic goods that are the stuff of daily existence is rendered more variable.⁹

ii) Shortening the length of contracts is a natural response when information about future conditions is very unreliable. But so doing, of course, is not a safe strategy for levering investment in long-lasting assets. When people are forced into very short-term contracts, therefore, a low level of fixed investment is a corollary to be expected.

For short horizons, indexation is of little use since (given the lags in obtaining and using the indices) a simple adjustment of the nominal payment using the past inflation rate will do as well. Short contracts, therefore, are written in nominal terms and incorporate the price expectations of the transactors.¹⁰

Long-lasting physical assets tend to have their markets dollarized. For the most part the alternative wealth-placements considered by owners are also abroad. The ownership of housing and real estate is the most important case. Moreover,

⁹ It is interesting to note that the markets that are first dollarized are in fact not the ones in which the continuous availability of an index-measure would be particularly beneficial. Dollarization tends to spread first in the sale or purchase of housing, for instance, i.e., in markets where people are making major wealth-placements for some length of time.

¹⁰ While generalizing about high inflations, one must of course note that high inflation economies differ from one another with regard to the way in which contracts are typically made. What contracting strategies will predominate depend on the magnitude of the inflation, on the institutional structure of the country in question, and on its previous experience with monetary instability. For example, in Brazil and Israel, indexation was formally introduced in a wide variety of financial contracts, while in Argentina, although indexing was far from rare, it was much less widespread. Instead, financial assets were held mostly in the form of very short-run nominal instruments or foreign currencies

domestic stock-market tend to wither away.¹¹ (Recall the observation made earlier concerning the problem of calculating and communicating reliable information about a corporation's net earnings.) For all practical purpose, there is then no organized market in manufacturing capital.

In sum, high inflation economies tend to end up operating on a *triple standard*:¹²

- 1) spot markets for long-lasting assets are dollarized;
- 2) housing rentals and wages are indexed or partially indexed;
- 3) wholesale and retail markets for consumer goods and services and intermediate products, etc. continue to use domestic money.

Such multiple standards are shot through with problems and inconsistencies of various kinds. The real estate market is in dollars, but there is no mortgage market in any currency. When the exchange rate moves it changes the relative price of dollarized houses and indexed rentals, causing huge excess demands in one market while the other dries up completely. This is one example of violation of arbitrage pricing. More generally, the excess variability of relative prices, which is another fundamental characteristic of high inflation processes, reflects a turbulence in the markets in which pricing inconsistencies are constantly being generated.

Please note how different this picture is from the one given by contemporary finance theory where all assets are priced "in real terms" first, and then converted into nominal prices by attaching a money to the "real sector" by some device or other.

iii) The third adaptation to uncertainty that I mentioned previously was for people to avoid certain types of transactions altogether. This thins out markets and, in extreme cases, makes them disappear.

Avoiding trading in markets that have become too risky may strike you simply as common sense behavior. But for economic theory this kind of common sense poses a puzzle. High risk will not by itself eliminate an asset from the efficient portfolio. Risk and aversion to risk will not make markets disappear.

¹¹ In Argentina (again) in the mid-'80's, the total market value of securities listed on the stock-exchange ranged between 1 and 2% of GDP only. The point, however, is that the exchange was practically dead — the annual volume of transactions was less than one percent of GDP! Total *annual* transactions, which were 0.24 billion dollars in 1987 (for example), had topped 15 billion five years later, i.e., two years into the recovery.

¹² Unless we count each index-basket in use as a different unit of account — in which case we should recognize sundry *n-tuple* monetary standard!

Moreover, differences in opinions about future prospects —and such differences abound in high inflation countries— are supposed to provide a motive for trading, not a motive to avoid trading. Why then do not heterogeneous expectations about inflation prospects produce thicker rather than thinner intertemporal markets?

But this is not the occasion for delving into the theoretical problems that experience with high inflations points out. For the present, we stick with an outline of the facts. The general picture to have in mind is one of the intertemporal structure of markets shrinking, starting in the long end. In the quite moderate U.S. inflation in the 1970's, when the *annual* rate did not exceed 15 percent, the 30-year bond market disappeared and 30-year fixed-rate mortgages pretty much did too.

At *monthly* rates of 15 percent or higher, we find the phenomenon of disappearing markets in its extreme form. In Argentina in the first half of 1985, the inflation was about 28 percent *per month*. 45 days to maturity was long-term money, but that was a pretty thin market. To find a market with substantial volume you had to look at 30-day money.

The limit of the disappearing markets process is revealed in the signs seen in many stores during Argentinean bouts with hyperinflation: "*Closed for the lack of prices*". In the limit all transactions become speculative. Retailers do not know at what prices they will be able to restock tomorrow. A wrong move and your working capital is wiped out!¹³ In the limit, even the markets for the most ordinary goods thin out and break down.

After the "lost decade", we are all looking forward, hoping that the 'nineties will become the "growth decade". This paper, however, has looked to the past to provide some understanding of the initial conditions for a resumption of capital accumulation in the countries that have suffered prolonged bouts of high inflation.

My quick survey stresses the damage that these inflations do to the institutions and markets that finance the growth of financially stable countries: intermediation is strangled, financial institutions become overstuffed and inefficient, and bonds and contracts of medium and long term die out. Moreover the financial innovations that high inflations trigger — indexation and dollarization of various kinds of transactions, for example — are mostly evidence of the diversion of talent and energies into financial activities that would be superfluous under conditions of monetary stability.

¹³ A major loss of working capital is a particularly serious threat, of course, in a situation where the markets and institutions to finance a new start are barely functioning.

Let me end on a better note. The good news is that the recuperative powers of a market system can work rapidly in some of these areas. Stabilization brings back competitive conditions, and thereby efficiency, to the banking system. Privatization of large government operated industries can bring a dramatic revival to the stock market. If past experience is a guide, however, the reemergence of longer term domestically denominated bond markets will not take place any time soon.

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SÍNTESIS

En este artículo se analiza el desarrollo social de un país con un sector determinado por la intervención de grandes instituciones financieras en el sector público. El propósito de este trabajo es presentar un modelo simple que sirva como punto de vista de la teoría de juegos para investigar las consecuencias de diferentes niveles de intervención entre las instituciones financieras y fiscales para determinar los gastos y representaciones políticas del sector público. El artículo también incluye un análisis preliminar de la evolución relativa al crecimiento social de Argentina durante 1970-1987, en que un sistema más desarrollado de instituciones inter-gubernamentales ha estado asociado a déficit y gastos públicos más altos.