From chronic inflation to hyperinflation

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1. Introduction

Phenomena that are essentially different in cause, consequence and therapy are often discussed under the generic name of inflation. This is certainly one of the reasons behind the difficulty in understanding chronic inflationary processes and consequently in reaching some consensus as to the remedy. A triple classification of the phenomena of generalized price increases as moderate inflation, chronic inflation, and finally hyperinflation offers some help in understanding the numerous facets of inflationary processes.

2. Moderate inflation

Moderate inflation is a rise in the general price level provoked by excess of demand, which appears most intensely in the final stage of economic cycles. Prices are pressured simultaneously by lower inventories levels and the approach of the limits of installed capacity. The increase in prices is followed by higher wages in a tighter labor market. This is the phenomenon analyzed in the macroeconomics textbooks of the 60s and 70s and synthesized in the Phillips Curve.

The hegemony of Keynesian ideas on the control of aggregate demand — as a way to avoid the deep, prolonged recessions observed in the first half of the century — introduced an inflationary bias which appeared with greater or less intensity in the industrialized countries after the 60s. Milton Friedman and the macroeconomic school of the University of Chicago were isolated voices in criticizing the optimism with respect to the possibilities of aggregate demand management. Their theses were confirmed by the empirical evidence of the 60s and 70s.

The limits of macroeconomic activism, the role of expectations and the impossibility of simultaneously sustaining a higher level of economic activity and an unemployment rate lower than the established by long-term determinants, have been incorporated into the macroeconomics of the 70s. The so-called Expectations Expanded Phillips Curve synthesized the revision of the macroeconomic mainstream. Monetarism unquestionably came out victorious over the naive Keynesianism of the 50s and 60s.

Moderate inflation is caused by an excess of aggregate demand — essentially a matter of too much money trying to buy too few goods — and monetary policy is the most powerful instrument to control it.
3. Chronic Inflation

Chronic inflation is a process of generalized increase in prices at a more accelerated pace, for a period of time long enough for mechanism of retroactive indexation of contracts to be developed. Prolonged exposition to a noticeable rise in the general price level crystallizes expectations of future price increases and leads to institutional and contractual adaptation to the new reality. On the one hand, these arrangements make inflation less disturbing to economy activity. On the other hand, they introduce a new element that makes it essentially different from moderate inflation.

The chronic inflationary process takes on a certain degree of automatism, that is, an independence from the pressures of aggregate demand, an inertial component, that calls for a revised analysis of its causes and therapy.

A moderate inflation treated with sufficient monetary complacency may, after a while, turn into a chronic inflation. The processes of moderate inflation also present a certain downward resistance. Once the upward pressures in prices are consolidated, reversion demands a period of relief in the markets. Lower aggregate demand, lower level of economic activity and employment, are obviously not achieved without sacrifice. Without political determination or independence of the monetary authorities to resist the pressures against the short term costs of constraining liquidity, the pressure on prices may be prolonged until indexed contracts become generalized. In this case, inflation acquires an inertial character that makes it practically insensitive to moderate decreases in aggregate demand.

The transition of moderate to chronic inflation, or even directly to hyperinflation, is in most cases not exclusively brought about by the incapacity to re-establish monetary discipline. More often, processes of chronic inflation are rooted in the attempt to sustain a major change in relative prices in order to overcome structural imbalances. Overcoming such imbalances, which may show very different specific aspects, requires lower levels of absorption than those that would result from voluntary savings rates, given the free configuration of relative prices.

Excess demand is the primary cause of the processes of moderate inflation. The origins of chronic inflationary processes are more often in the attempt to extract from society a surplus higher than its voluntary savings. Programs of accelerated late industrialization, military mobilization in war situations, as well as efforts to obtain large external trade surpluses — either to pay war compensation (Germany in the 20s) or to pay for the external debt service when access to sources of financing is interrupted (the great indebted nations of the 80s) — are examples of these attempts to extract extraordinary surpluses.

The inflation of Latin-American economies in the 50s and 60s are examples of the pressures of the effort of accelerated industrialization. The apparent contradiction between the analysis of the Latin-American structuralist school and the macroeconomic mainstream of the Phillips Curve in the 50s and 60s is understandable when one realizes that different phenomena were being discussed under the common denomination of inflation. The exacerbation of the chronic inflationary processes of the great debtors, after the oil shock and the subsequent crisis of the international credit market, is an example of the pressures born of the effort to generate trade surpluses that are made necessary by the inversion of international capital flows.

Accelerated industrialization as well as extraordinary trade surpluses require mobilizing saving surpluses that are only attainable with a configuration of relative prices, especially lower real wages and a higher real exchange rate — in the sense of greater devaluation of
the national currency — than would otherwise prevail. The downward rigidity of prices and nominal wages implies an inflationary spurt to readjust relative prices. Such a spurt could in principle be constrained to a once and for all increase in the general price level, were it not sanctioned by a passive monetary policy that accommodates wage and price increases which attempt to restore the previous configuration of relative prices.

Just as an outbreak of moderate inflation caused by overheated demand may be avoided or reverted by a restrictive monetary policy, so too the inflationary pressures that result from structural adjustments that normally lead to, or aggravate, a chronic inflationary process could be curbed by an inflexible monetary policy. However, the parallel between the two cases ends here. Readjustment of relative prices does not necessarily happen in conditions of excessive demand and overheating economic activity. In this case the inflexibility of the monetary policy does not aim at checking overheating, but at provoking a recession to force lower wages and a real devaluation of the exchange rate. The political difficulties in justifying and sustaining such an option are obviously infinitely greater. Monetary accommodation, to a greater or less extent, ends up prevailing.

Once even an incipient process of chronic inflation has started, a vicious circle is created: prolonged exposition to inflation, and the consequent development of indexation mechanisms, reduce the costs of living with it and increase the recessive costs of the non-accommodating option. In the absence of negative supply shocks, chronic inflationary processes of a not too virulent nature can remain approximately stabilized for relatively long periods. However, they become more and more resistant to conventional gradualist therapies and are apt to accelerate in the presence of any inflationary shocks, whether due to overheated demand or to the need for new adjustments of relative prices in the face of supply shocks or balance of payments crises. Chronic inflationary processes, therefore, have a relentless tendency to accelerate.

Although fiscal deficits are almost always associated with both moderate and chronic inflationary processes, it is perfectly possible in principle to have inflation with a balanced fiscal budget. Loose monetary policy produces inflation even in the absence of fiscal deficits and a tight monetary policy prevents moderate inflation from breaking out, even though there may be a temporary rise in the fiscal deficit.

In chronic inflation a reduction of the fiscal deficit is always a necessary condition to prevent the process from worsening. Not necessarily because the deficit is the chief driving force behind inflation, but because the deficit competes for the saving surplus. Were the fiscal deficit sufficiently reduced to bring absorption to a level compatible with the required surplus, there would be no need for an inflationary readjustment of relative prices. The fiscal deficit competes for scarce financing in an economy where savings or exchange constraints have become quite severe. This same deficit might have not exerted inflationary pressure before such constraints become acute or if the configuration of relative prices could be altered without any friction and the private saving rate proportionately raised.

In the case of both moderate and chronic inflation, reducing the fiscal deficit acts to lower the pressures on prices. It should be, however, stressed that neither the fiscal deficit is always the primary cause of inflation nor can an univocal relation between the deficit and inflation be established. Virtually any rate of inflation may be observed with the same fiscal deficit. Depending on how developed the indexation mechanisms are, chronic inflation becomes insensitive to a reduction of the fiscal deficit or to the overcoming of any of its original causes. This is the essence of the inertial element of chronic inflation.
Two recent examples illustrate the insensitivity of chronic inflationary processes to reduction of fiscal deficit, namely the adjustment programs implemented in Brazil between 1981 and 1984 and in Mexico between 1983 and 1986. In the Brazilian case the public deficit was brought down from 8.3 percent of the GDP in 1982 to 2.4 percent in 1984. The Mexican program lowered the fiscal deficit from 6.5 percent of the GDP in 1982 to 2.1 percent in 1985. The results obtained in the trade balances were remarkable. Though eloquent by any criteria, such adjustments were unable to reduce significantly the pace of the inflation. On the contrary, inflation in Brazil went from around 100 percent a year to approximately 200 percent; Mexico’s inflation dropped from 90 percent in 1983 to 60 percent in 1984/85, later to return to 80 percent.

Both the Brazilian and Mexican experiences were recessive. Lower fiscal deficit, no sign of excess demand, reversion of the trade deficits, but very modest results as far as inflation was concerned. Although relatively restrictive in both cases, the monetary policies were still essentially accommodating. In contrast, the Chilean experience from mid-1973 until mid-1976 shows the results of an even more rigorous fiscal adjustment — and one accompanied by a similarly rigorous monetary policy.

The drastic liquidity squeeze was part of a sweeping stabilization program that brought down the public deficit from 25 percent of the GDP in 1973 to 10.5 percent in 1974 and 2.6 percent in 1975. The Chilean experience, implemented with the authority and the rigor of an extremely tough military regime and under the inspiration of economists trained by the school of monetarism at the University of Chicago, stands out as a standard case of the orthodox stabilization experiment in an economy suffering from chronic inflation. The price increase was reverted, but the inertia of the processes of chronic inflation was dramatically confirmed. Inflation fell from 500 percent in 1973 to 250 percent a year at the end of the period. The unemployment rate rose from 4.6 percent in 1973 to 16.8 percent in 1975, and the GDP dropped as much as 14.4 percent in 1975.

The empirical evidence of the resistance of chronic inflation processes to orthodox stabilization programs, as shown in the Latin-American economies of the late 70s and early 80s — and to which must be added the case of Israel — has been the object of intensive analysis and extensive academic debate. The Latin-American and Israel experiences were followed by great conceptual advances in the macroeconomics of inflation. The theoretical formulation of the inertial component of chronic inflation and the development of alternative or heterodox strategies were the fruits of the analysis of these frustrated orthodox experiences.

From the time of the pioneering experience of the Austral Plan in Argentina, these same countries were once more witness to frustrated stabilization efforts. Programs conceived and directly inspired by the theoretical developments based on the critical analysis of the orthodox experiences were implemented. After an initial period of six to 12 months of apparent success, the heterodox experiences were followed by the virulent resumption of inflation. Except for the case of Israel — and even so at the third heterodox attempt at stabilization — all the other experiences ended in total failure.

As in the case of the orthodox experiences, the failure of heterodoxy was accompanied by debate and analysis, which allowed new advances into the understanding of chronic processes. Although the debate is still underway, a high degree of academic consensus exists as to the elements that are indispensable for stabilization.
Briefly, stabilization of chronic inflation requires:

- the elimination of the institutional component of inertia by converting contracts to a new currency in order to preserve their current average real values;

- the creation of nominal anchors such as the exchange rate, wages and some key prices;

- the rigorous control of monetary policy through nominal limits for credit expansion. Credit control seems to be the best monetary target since it does not present the problems associated with the correct estimation of the upward shift in the demand for money when there is a brusque curbing of inflation;

- the elimination of the fiscal deficit so as to make the fiscal budget compatible with the sources of non-monetary financing within the limits of expansion of total domestic credit.

The first two points are the heterodox components to which are added orthodox monetary and fiscal control. There is a consensus on the complementary of the orthodox and the heterodox elements. The confusion between the complementary and the substitutive character of orthodox and heterodox elements was unquestionably behind the mistakes and failure of the early heterodox programs. The credibility and the feasibility of the nominal anchors beyond the first months of the program require the elimination of the primary sources of inflationary pressures.

As observed above, the fiscal deficit is not necessarily the main source of inflationary pressure in chronic processes which have not yet reached its final stages. The pressures associated with the need to alter the configuration of relative prices, in order to raise the saving rate and to reduce absorption, are more often the driving force behind aggravation of chronic processes. However, the prescription of reducing the fiscal deficit until it becomes compatible with the non-inflationary limit of domestic credit expansion remains the *sine qua non* condition to eliminate these pressures.

The macroeconomic identity between the current account surplus and the sum of the excess of private savings over investment and the fiscal surplus, determines that the non-inflationary compatibilization of domestic absorption with the national revenue may be re-interpreted as a constraint exclusively on the fiscal budget. Nevertheless, it should be observed that the decision of privileging fiscal deficit as an adjustment variable does not necessarily means the acceptance of a causality between the fiscal deficit and the inflationary pressures. It is the expression of a judgment on the costs and benefits of the different adjustment possibilities. The reduction of private consumption and investment, or of the liquid transference of resources abroad, are options that could also as well reestablish the equilibrium of the national accounts.

The option to reduce the fiscal deficit presupposes that the adjustment based on the reduction of liquid transference abroad is not feasible or desirable. It presupposes that it is desirable to reduce the government’s participation in the economy, even if it is possible to reduce or to postpone the transference abroad. Private-sector spending, especially investment, is considered more efficient and more capable to generate growth. Making these hypotheses explicit is essential for clarifying the discussion on stabilization and the resumption of growth.
The acceptance of the greater efficiency of private spending means that from the point of view of the resumption of growth, reducing government spending is not equivalent to increasing fiscal revenue. Accepting, furthermore, that public investment in certain areas is complementary to private investment, means that its careful and selective evaluation is far superior to merely raising taxes in a stabilization program that wishes to resume growth.

Increasing fiscal revenues reduces aggregate demand according to the private sector’s marginal propensity to consume and invest, whereas bringing down public spending corresponds to a proportional reduction in aggregate demand. As long as the private sector’s marginal propensity to save is not nil, cutting public spending is more powerful than raising taxes as a way of reducing absorption.

The apparent equivalence of reducing spending and raising revenue becomes especially questionable in chronic inflation. In these cases, excess demand is not necessarily the main source of pressure on prices. Tax increases reduce disposable income and aggregate demand but worsen the dispute for the saving surplus which lies at the root of chronic inflationary processes. Higher taxes — especially indirect taxes — are a source of inflationary pressure in the short-run. In advanced stages of chronic inflation, raising indirect taxes may appear as the only alternative available for a politically and operationally exhausted government. The result is acceleration of inflation, exacerbation of the indexation mechanisms and aggravation of expectations. In this case, raising taxes is a factor that accelerates rather than moderates price increases.

Contrary to the initial criticism and fears, the recent experiences of the Brazilian, Argentinean and Israeli programs showed that the interruption of the chronic inflation tends to provoke an increase in consumption and aggregate demand. Even in the successful case of Israel, which avoided the mistakes committed by Brazil with regard to monetary and wage policies, there was a tendency towards an overheated demand. This is not necessarily desirable, nor is it a guarantee of resumption of sustainable growth, for it might contain components of speculative anticipation of consumption, associated with the lack of confidence as to the sustainability of price stability. This is the reason why the rigor of monetary policy in the early stages of the program has to be greater than that required after consolidation of expectations.

Credibility is a condition for both the success of the program and for the recovery of investments and growth. Accepting rationality in expectations, the elimination of the primary causes of inflation is a sine qua non condition for credibility. Previous stabilization failures and the government’s political exhaustion may demand a greater adjustment than the effectively required by objective macroeconomic conditions.

4. Feasibility of gradualism

In the absence of adverse shocks it is possible to stabilize a chronic inflationary process in its early stages for relatively long periods of time. It is, however, impossible to maintain chronic processes stable when they are already advanced. It is likewise possible to control moderate inflation through a gradualist reduction of the fiscal deficit accompanied by a restrictive monetary policy, but empirical experience demonstrates that chronic inflation cannot be treated gradualistically when it has reached advanced stages.

There are three main reasons why stabilizing acute inflationary processes is unfeasible. The first one is that fiscal revenue deteriorates. Its real value is reduced by inflation due to
the time lag between the moment the tax is due and the moment it is collected by the Treasury. In addition to this deterioration, known in the literature as the Oliveira-Tanzi Effect, the lag between accounting values and real values creates innumerable channels of tax evasion. Sophisticated mechanisms of accounting indexation and measures aiming at shortening the periods for collecting taxes can attenuate the loss of revenue. Nevertheless, the higher the rate of inflation, the more likely it will be that the attempt to gradually reduce the deficit becomes a Sisyphus task: the effort has no immediate effect on the rate of inflation, the channels of evasion increase, real fiscal revenue falls and the modest gains with respect to the deficit are annulled.

The second reason is that the government’s capacity to finance its deficit decreases with higher rates of inflation. Inflation reduces the real stock of money held by the public. Since this stock — or more precisely the monetary base — is a government liability, inflation acts like a tax that reduces the value of a private asset. The rate of inflation is the aliquot and the monetary base held by the public the tax base of this “inflationary tax”. As the rate of inflation goes up, the public reduces the amount of money held, in order to contain the loss resulting from the inflationary tax. The tax base falls and to obtain the same “revenue” it is necessary to raise the aliquot, that is, inflation.

This is one of the reasons why the same fiscal deficit may be associated with different levels of inflation. Even if the deficit is kept constant, in time the economy develops financial assets with liquidity characteristics very similar to currency, but which pay interest and are not subject to the erosion of the inflationary tax. The higher the rates of inflation the greater the number of such substitutes for conventional currency. Consequently, the public quickly substitutes conventional currency by this “remunerated currency”. The government loses part of the base of incidence of the inflationary tax and finds itself having to seek alternative sources of financing. Since the sources of fiscal financing are depleted, inflation tends to accelerate even if the deficit is constant or slightly reduced.

The third and certainly the most important reason for non-feasibility of gradualism is due to the dynamics of expectations. When the monthly inflation is lower than expected, there is a relative relief from tensions and an increase in the dubious hopes of success of gradualism. When the monthly inflation index is higher than expected there is an asymmetric reaction of panic. Fear of the threshold of hyperinflation leads to sensation that radical measures to quell inflation are inevitable. The logic of political survival questions the gradualist strategy and forces the government to act. Nonetheless, there is no more powerful accelerating effect on inflation than the generalized awareness that the government may try some measures to repress it. The prospect of a price freeze or a change in the indexation mechanisms leads to defensive movements that re-accelerate inflation.

When the legal mechanisms of indexation are preserved, any sectorial pressure, such as an increase in agricultural prices or the exacerbation of defensive price increases, is enough to consolidate a new inflation threshold. The attempt to eliminate or the loss of confidence in these same indexation mechanisms is, however, the major risk of triggering hyperinflation. What distinguishes open hyperinflation from chronic inflation is precisely the loss of confidence and the disruption of the institutional mechanisms of indexation. Though the official currency may have lost all vestiges of its properties of store of value and of unit of account, institutional indexation allows the creation of alternative instruments and references. Expectations maintain a minimum degree homogeneity without which no economic activity is possible.
Freezing prices is a strong temptation when faced with the frustrations of gradualism. Its immediate effect on the rate of inflation has a strong political and popular appeal. It creates a consumption boom which, for a short period, relieves the pressures of recession. Its ability to postpone the passage to the last phase of hyperinflation — even for increasingly shorter periods — turns price-freezes into an ever tempting alternative. Its practical effects, however, are disastrous: black markets, shortages and finally a price explosion which leads to an even more aggressive resumption of the inflationary spiral.

No matter how favorable the circumstances and for how short a period of time, a price freeze creates all sorts of problems. The simple presumption that it could be adopted provokes defensive price increases. Its worst effects are not noticeable in the short run, namely the interruption of the functioning of the prices system. In advanced stages of inflationary process relative prices are distorted. The difficulty in distinguishing increases in relative prices from rises in the general price level weakens the discipline exhorted by demand. Yet under no circumstances does there exist a correct configuration of relative prices. The prices system is not some rigid structure, but rather a live web of communicating signs, a permanent agitation of prices transmitting an infinite number of disperse, nonformalizable information. Information that allows unknown preferences and possibilities to be discovered, leading to a continuous process of infinite decision-making in a world of ignorance and imbalances. The costs of the disruption of this live web of information constitute the most serious consequences of chronic inflationary processes and price freezes go far beyond their visible effects.

Freezing or controlling prices cannot restore the credibility of the national currency. The awareness of the artificial and ephemeral nature of administrative controls prevents the briefly reestablished capacity of the currency to preserve its value from being viewed as lasting.

The gradualist strategy, accompanied by price controls and occasional freezes, is especially frustrating in advanced stages of chronic processes. On the one hand, the loss in real fiscal revenues and the increasing difficulties in financing the deficit join forces with the asymmetric volatility of expectations to ensure the acceleration of inflation. On the other hand, the possibility of disrupting indexation outside the context of a comprehensive and organic stabilization program is the shortest route to hyperinflation. Without such a program, chronic processes in advanced stages inevitably head for hyperinflation.

5. Hyperinflation

Hyperinflation is a process of violent price increase in which the national currency is rejected and the government has lost all its alternative sources of financing. Rather than a determined level of the monthly rate, what best characterizes hyperinflation is the complete depletion of all the mechanisms of public financing.¹

¹ The conventional that the rate of 50 percent a month marks the beginning of hyperinflation comes from Phillip Cagan's classic work The monetary dynamics of hyperinflation. Cagan defines hyperinflation as the moment when the acceleration of inflation stops raising the collection of the inflationary tax and begins to reduce the government's inflationary revenue. Given the interest-elasticity of the demand for money in the United States at the time of his article, this point of reversion in the collection of the inflationary tax would be at the rate of 50 percent a month.
Price increases are constantly accelerating and, given the high variance of relative price, the very notion of a general price index becomes irrelevant. There is no price index capable of preserving the real value of contracts. With prices in rapid acceleration, the lag between the period when data is collected and published implies a loss in the real value of contracts even if the readjustments are daily. Even if it were possible to construct a representative general price index, however short the period between readjustments, the loss in real average value of the contracts would be significant. Retroactive indexation becomes unfeasible. With no retroactive indexation, the institutional aspect of inertia disappears and the dynamics of inflation becomes dominated by expectations.

Rejection of the national currency is complete. Unable to serve — even for a few hours — as store of value or unit of account, the currency finally loses its property of means of payment. Prices start to be quoted and transactions to be carried in foreign currencies. The disruption of the price and payment systems imposes extraordinary difficulties to economic activity. A chaotic recession infallibly accompanies the final phase of hyperinflations.

The advanced phases of chronic inflationary processes take on characteristics that bring them closer and closer to hyperinflation. There is a stage of chronic processes in which a complete rejection of all the government’s financial assets has not yet occurred, but the public sector’s financing capacity is drastically reduced. Most of the public sector’s financing sources are lost.

One trivial fact that should be remembered is that if the government has no more credit, it becomes impossible to conduct a restrictive monetary policy. To conduct a restrictive monetary policy is to substitute public financing via debt creation for public financing via money creation. If hyperinflation is characterized by the complete inexistence of public credit, there is no feasible monetary policy in hyperinflation. Monetary control, even for very short periods, becomes entirely conditioned to the fiscal balance being re-established.

External financing is the first to disappear, given the economic and political uncertainties that accompany aggravated chronic inflation. Fiscal revenue suffers the erosion of the Tanzi Effect and of the disruption of economic activity. The very legitimacy of recurrent attempts to raise the tax burden to curb an inflation that proves insensitive to such efforts is questioned.

The limits of internal indebtedness become tighter with the growing perception of the pre-bankruptcy state of the public sector. The inflationary tax consequently acquires a greater importance in the government’s sources of financing. With the fall of the monetary base substituted by interest-paying liquid financial instruments the rate of inflation has to accelerate. The fiscal deficit effectively comes to be the driving force behind inflation as any deficit, no matter how small, becomes non-financeable.

In its final stages hyperinflation carries within itself the seed of its own cure. Contractual inertia disappears. The process of currency-substitution, or dollarization, synchronizes readjustments and reduces the distortion of relative prices. Prices and indexes expressed in national currency lose all meaning. The informal economy becomes dominant and the government’s capacity for intervention becomes nil. Rather than the bankruptcy of the public sector, the final crisis of hyperinflation is the bankruptcy of the State. In face of the bankruptcy of the State, the political alliances that configured the inflationary impasse are broken down opening the possibility of stabilization.

The costs of hyperinflation taken to its ultimate stages are incalculable. The collapse of the financial system as an intermediary of funds and the degree of uncertainty interrupt investment and disrupt economic activity in the last stages of chronic inflation. The chaotic re-
cession that accompanies the acute phase of hyperinflation is particularly destructive. The loss of what can be called organizational capital, which occurs in deep recessions, is pervasive. The network of implicit contracts that constitute corporations as organic entities, the stable flows of trade between suppliers and buyers, and other economic relations in the market are destroyed. The bankrupt hypertrophy of the public sector destroys the operational capacity of the State, turned into a non-financiable dead weight.

The costs of a process of hyperinflation taken to its final stages go far beyond short-term economic costs. Without entering into the political costs of hyperinflationary disruption of economic life and State bankruptcy, the capacity to resume growth after stabilization is seriously jeopardized. Stabilization requires reconstruction of the State and the stable institutional-juridical framework without which there is no possibility of restoring a competitive market economy.