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Inflation and stabilization policies

Daniel Heymann

Inflation, even at moderate rates, is not innocuous, since it is generally associated with erratic variations in the level and structure of prices. Nevertheless, if it is kept within certain bounds, the economy is able to find ways of adapting itself and activity can develop without undue uncertainty.

The nature of the problem changes in situations of high inflation, such as those that have affected several countries in recent years. In these cases economic activity is seriously disturbed. The public sector and the private agents shorten the time horizon of their decisions; the authorities are harassed by the difficulty of administering an almost unpredictable economy, while the public makes great efforts to safeguard itself against the changes in prices or to take advantage of them. When speculation becomes rife, it is more likely that the measures taken will be mutually inconsistent; the abrupt fluctuations in prices also help to aggravate social conflicts. The economies subject to this turbulence have serious problems in dealing with the issues of growth. Thus the control of inflation seems to be a *sine qua non* for the reasonably effective functioning of the economic system.

Few questions have been so much debated, from both theoretical and practical angles, as the phenomenon of inflation. Nonetheless, the controversy persists. The aim of the present article is to comment on these debates, indicating some of the problems underscored in the analysis of the causes and consequences of inflation and in the designing of stabilization policies. The last part briefly reviews one particular stabilization policy: the *Plan Austral* applied in Argentina since the middle of 1985.

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The debate on the causes of inflation

1. *Statement of the problem*

There have been many controversies on the origin of inflation.¹ This is due in part to the ambiguity of the question itself. In an inflationary situation there is a simultaneous, though not always equal, rise in the different categories of prices, in wages, in the exchange rate and in monetary aggregates. What is the cause of the rises in the general level of prices? The question may refer to issues which are very diverse from an analytical standpoint: to the immediate determinants of prices (i.e., in econometric terminology, to an equation of the model in structural form); or to the ultimate causes of inflation (i.e., to an equation in a reduced form, in which only exogenous variables would be taken into account).²

As regards the first point, there is at present no well-established theory on price formation: both the equilibrium models and those that postulate fixed margins over costs give only an imperfect idea of the complexity of the functioning of the market. The question is not merely academic, because this lack of knowledge prevents precise determination of the speed and scale of the transfer of cost increases to prices in different circumstances, or of the reaction of prices to changes in demand. This raises some doubts about hypotheses on inflation based on very rigid assumptions as to the mechanisms of price formation.

¹There are several widely disseminated studies that present a picture of the state of theory at different points of time (Bronfrenbrenner and Holzman, 1963; Laidler and Parkin, 1975; Lipsey, 1981; Frisch, 1983). A comparison of these works clearly shows the diversity of the approaches, as well as the changes that have taken place in theory in the course of time.

²The distinction appears in Addison, Burton and Torrance (1980). In the models applied the character of the price equation is not always clear. For example, an equation that relates prices to wages, the exchange rate and the money supply belongs in principle neither to the structural form (because the money supply can hardly have a direct effect on decisions about prices; at all events it will act through its effect on global demand or expectations) nor to the reduced form (because it does not seem that all the independent variables can be treated as exogenous).

At all events, decisions on prices depend not only on directly observable variables but also on the agents' conjectures as to the conduct of others. This implies that the more clearly-defined are individual forecasts, the more orderly the variation in prices will be. It also seems that the response of prices to a given stimulus will depend on the perceptions and expectations of those who fix the prices. Above all, the pattern of price adjustment will vary according to the public's estimation of future decisions on economic policy.

This does not mean that everyone has the same perceptions, or that these coincide with the "real" mode of action of the authorities or of the other agents. Indeed, one of the features of high inflation would seem to be the inconsistency of expectations. In that case, price-fixing behaviour patterns too would be difficult to describe systematically. If these vary with the inflationary regime, there will probably be no need for a precise explanation of the price changes in a given régime in order to analyse the transition to another (because the change itself would make behaviour vary). For example, in considering stabilization policies, it would seem to be less important to have an idea of the way in which prices are fixed in inflation than of the behaviour patterns observed once the policies in question have been introduced. Of course, there remains the problem of recognizing when a change of régime has actually taken place.

In analysing the ultimate determinants of inflation, the function of the authorities' reaction must likewise be taken into account, because, depending on this, certain variables might be regarded as exogenous, while others (including some policy instruments) would be determined as a result of those. But the concept of the exogenous is ambiguous, since it depends on how far the explanation is to be taken: for example, in monetary models it is customary to regard the money supply as a datum, but, generally speaking, monetary policy will probably react (perhaps differently with the passage of time) to the fiscal situation, to the level of activity, etc.; in turn, an attempt may be made to explain the changes in these variables as a response to other influences (economic and extra-economic), and so forth and so on. This gives rise to two symmetrical risks: on the one

hand, the postulation of simplistic explanations (e.g., the assumption that certain instruments may be varied at will, when this is not the case); and, on the other, the pursuance of the argument to a point at which no reasonably precise affirmations can be made.

It is, in the end, a matter of criterion. Nevertheless, since inflation can in principle arise in different ways, with different consequences in each case, it is necessary to consider the process that gives rise to price increases. This argument can be illustrated by an example which has little to do with the inflations observed in practice, but which, for that very reason, points up a contrast with the theories under discussion.

Let us assume an economy with the following characteristics. There is a benchmark or reference price, fixed arbitrarily in each period; it is immaterial for the exercise whether this price is determined by the public sector or by some private-sector agent (or group). Each time that the price varies individuals receive a transfer of money which raises their holdings of monetary assets in the same proportion (k) as the benchmark price.³ The debts of the public sector, if any, and prices controlled by the government are also modified proportionately. In the last instance, when the price of the benchmark product changes, a sort of monetary reform occurs; probably the private agents will realize that, if all prices are multiplied in the proportion $k >$ markets will prove to be in the same real situation as before the change. Nor, moreover, will pre-existing contracts be affected if (as is reasonable to expect in this case) individuals include an indexation clause in their future payment contracts. In other words, even though the general level of prices (determined by the benchmark price) may evolve erratically, with a rising trend more or less pronounced, inflation will have a neutral effect in practice. Furthermore, if inflation had these

³The example (which is suggested by Leijonhufvud, 1983 b) assumes an explicit policy of inactive money. The conclusions would be exactly the same if the initiative came from the monetary authority. It should be noted, on the other hand, that with the hypotheses of the example there is no inflationary tax on stocks of money and therefore there is no reason why demand for real balances should depend on the variations expected in the benchmark price.

characteristics, it would be easy to eliminate: it would suffice to fix the price of the benchmark product once and for all. (No notice is taken here of the variations in nominal prices due to changes in the relative price of the benchmark product. For the merely illustrative purposes of the present example, this does not significantly affect the argument.) Since no group of agents gains or loses as a result of this and since presumably prices would immediately be adjusted to the fixed benchmark price, the measure would not cause resistance or upheaval.

This elementary example has a negative purpose: namely, to show how strict are the conditions in which inflation has a well-defined cause and innocuous consequences. In fact, in the exercise it is postulated that:

i) Monetary policy is extremely restricted, since it is confined to increasing the money supply, with all due notice, in the same proportion as the price of the benchmark product;

ii) Fiscal policy is also subject to a major restriction: it has no access to monetary financing except to make transfers in proportion to cash holdings. In other words, there can be no deficit financed by a money issue over and above these transfers;

iii) Prices regulated by the government (public service tariffs, exchange rate) must rise in line with other prices;

iv) Workers and firms are accurately acquainted with the functioning of the system, adapt their behaviour to that knowledge and rely upon other agents' doing the same. This implies, in particular, that there has been a previous learning period which has led to the adjustment of decisions on prices and of ways of drawing up contracts;

v) Given these assumptions, the origin of price variations can be found, straightforwardly enough, in the price of the benchmark product. There is no specific motivation, however, for this inflation: the authority that fixes the reference price at any given time has no particular interest in whether it has this or that value.

None of these conditions is fulfilled in practice. Inflationary processes appear to be due to a complicated interplay of action and reaction between economic policy and the different parts

of the private sector, which cannot be represented in the simple and well-defined terms of the foregoing exercise. At all events, to try to understand this interplay, and the persistent rise in prices that ensues, it is necessary to introduce simplifying assumptions. Several types of general hypotheses on the origin of inflation have been proposed, differing with respect to price formation mechanisms and to the direction of the causality they postulate between prices, wages and money.

2. Monetary-fiscal theories

According to the most traditional concept, inflation is always and everywhere a monetary phenomenon (Friedman, 1968). Monetarism today differs from the former construct of simple quantitative theory and of demand inflation models (in which inflation was associated with conditions approaching full utilization of capacity): the theory does not postulate a necessarily close relationship, period by period, between money and prices, since it admits various anticipations or lags and also rationalizes situations of price acceleration with simultaneous declines in activity. But these effects would be explicable, in any case, as resulting from changes in the money supply. Monetarism is, in the first place, a methodological position: the level of prices is analysed through money supply and demand. Secondly, traditional monetarism considers the money supply as an exogenous variable, which regulates global demand⁴ and, through this, real output and prices.⁵

In the most typical simple model, demand for money is expressed as a stable function of nominal income and the rate of interest, which, in turn, is equivalent to the sum of the real

⁴ Except where otherwise stated, the terms "global demand", "aggregate demand" and "demand for goods" are used here to designate a variable that defines the position of a demand curve (i.e., they refer to the function that determines the ratio between prices and global quantities). This can be approximately assimilated to nominal income. An increase in global demand, defined in this way, is compatible with a variation, either positive or negative, in quantities of output.

⁵ The conventional analysis can be extended to include monetary régimes in which the money supply is an endogenous variable. A case in point would be the monetary model of open economies with a fixed exchange rate, which is discussed later.

interest rate (assumed to be more or less constant) and the anticipated inflation. A global supply function is postulated, which links output with current prices and expected prices.⁶ These depend on the evolution of the money supply, or, at all events, on price trends in the past.⁷ Output and the general level of prices in the current period are simultaneously determined, therefore, by the present value and the expected value of the money supply.⁸

The theory has two components: the association between money and prices, on the one hand, and the hypothesis of the exogenous nature of the money supply, on the other. Respecting the first point, a distinction can be made between the closed-economy monetary models and those of an open economy. In the closed-economy models prices respond to the conditions prevailing in the domestic markets, which, in their turn, would be governed as a whole by the money supply. The open economy models (Frenkel & Johnson, 1976 and 1978) are based on the single-price rule for tradeable goods: the trade-off between purchases or sales in the country and abroad would cause prices to be governed by international prices and the exchange rate (once the effects of taxes on external trade had been discounted). In the simplest hypothesis, the level of prices is directly determined by the condition of parity of purchasing power; generally speaking, it is recognized that the real exchange rate can vary owing to relative price changes as between tradeable and non-tradeable goods. The more open the economy (in the sense that the share of tradeable goods is greater), the closer will be the linkage between domestic prices and the exchange rate. The way in which money and prices are associated will depend on the

*See Friedman (1974), Lucas (1973 and 1981), Cagan (1956) replaces the supply curve by the assumption that the quantities produced are constant.

⁷The difference in assumptions on formation of expectations among the authors who accept the monetary interpretation of inflation is reflected in different attitudes towards stabilization policies. For the purposes of the present discussion this difference is not essential.

⁸The monetary model recognizes that the exogenous variations in the supply of goods (caused, for example, by random changes in primary production) can affect price levels. However, a distinction is also drawn between once-for-all changes in prices and their persistent increase; the latter would have a monetary origin.

international payments regime. With a floating exchange rate the money supply will affect prices (through its effect on the value of foreign exchange in local currency), whereas with a pegged exchange rate (when there is parity of purchasing power), the causality, moment by moment, will be reversed.⁹ Nevertheless, whether the exchange rate floats or is handled as an instrument of economic policy, the trend of prices will be determined by the money creation of domestic origin.¹⁰

Writers differ in their positions regarding the supposed exogenous character of the money supply (or of domestic credit, if an open economy model is applied). For some, the monetary authorities can regulate the volume of their domestic assets. Others, on the contrary, contend that this capacity is small: even if a close relationship exists between money and prices, it is not monetary but fiscal policy that will determine the rate of inflation. These authors point out that the financing of the government limits the autonomy of monetary policy: the public-sector deficit can be temporarily covered by securities against the debt, but, if funds are not generated to service this debt, in the last resort it will have to be monetized. In other words, the fiscal deficit has repercussions on the money supply, whose increase determines that of prices.¹¹

⁵Writers do not agree on the capacity assigned to the Central Bank to sterilize reserve flows; i.e., to control the money supply in the short run by fixed exchange rates (Darby, 1980).

⁶The connection between domestic credit and prices would be more indirect with a fixed exchange rate, especially if there were marked capital mobility, because the variations in international reserves would offset those occurring in the Central Bank's internal assets, so that the latter would have little effect on the money supply and prices. Nevertheless, the monetary models emphasize that this independence is limited; in the long run, the exchange rate must vary at the same rate as domestic credit (because, if not, the flows of reserves would become insupportably great), so that this latter regulates the average value of the rate of inflation (Rodríguez, 1979).

⁷See Sargent and Wallace (1981); for the Argentinian case: Cavallo and Peña (1983). In the original argument, there is no essential linkage from period to period between deficit and prices: it is not the temporary but the permanent credit requirements that will cause inflation. The fiscalist position is sometimes expressed as an assumption that prices grow in proportion to the public debt in a broad sense (i.e., including both money and other assets that produce interest). This point of view ignores the possibility of changes in demand for assets, and it is assumed that an open-market operation (which replaces one form of debt by another) would be irrelevant, which is not obvious.

Analysis of the determination of the money supply has recently been extended in an attempt to represent the interaction between the behaviour of the monetary authorities on the one hand, and that of the public or of other sections of the government, on the other. The following would be an example of these models.¹² The economy is represented by a Phillips curve amplified by expectations: if global demand (which depends solely on the money supply) grows at the pace predicted, prices are adjusted in the same proportion and output remains at its equilibrium value; unexpected increases in demand give rise for a time to greater activity, while prices react less than proportionally to the variation in expenditure. Individuals know this and incorporate the datum into their price expectations; they are also informed as to the behaviour of the economic authority, whose measures give preference to conditions of low inflation and high output. Below a certain level of inflation, the authorities are willing to increase demand if this implies greater activity; beyond that point they consider a decline in the real product acceptable in exchange for a lower inflation rate. There is consequently an equilibrium which consists in maintaining the rate of inflation at that critical figure, since any other situation would be unstable; if, for example, the rise in prices were lower than that figure, the public would expect the government to try to raise global demand, and would adjust their expectations accordingly. Only at the critical point of the inflation rate are the government and the public without incentives to change their behaviour.

It will be seen that, in this model, the rate of inflation is determined, in the last analysis, by the preferences of the authorities (one of the weaknesses of models of this type is that they do not define how these preferences are formed and how they come to be known by the public), and

the parameters of the economy, particularly quantity-price elasticities over the short term. In other words, although the hypothesis of a relatively simple association between money and prices is maintained, an exogenous explanation is sought for the changes in the money supply, so that the cause of inflation is identified with the determinants of this supply.

The models of this type are of obvious interest, since they show how the rate of inflation depends on the nature of the responses that the evolution of the economy evokes in the authorities, and *vice versa*. They also lead to conclusions that are useful for the discussion of stabilization policies: to a large extent, a sustained change in the inflation rate may be seen as a modification of the game that determines price increases. In contrast, these models also demonstrate the complexity of the analysis, even when it is based on clearly-defined assumptions as to behaviour. Inasmuch as they are based on relatively simple games and impose conditions of equilibrium and rational expectations, the models probably give an oversystematic interpretation of the inflationary process. Both from the standpoint of the study of causality and from that of the description of price formation mechanisms, the monetary and fiscal models leave problems unresolved.

In point of fact, the association between money and prices seems difficult to reduce to a simple formula. In a sense, the monetary models do not offer an independent explanation of prices: these would be deduced residually from the money supply and the other determinants of demand for money. Between changes in the money supply and in prices there is an implicit sequence of effects, passing through global demand and the public's expectations with respect to this, which is not described precisely. To begin with, the very concept of money is not defined with exactitude: there is a variety of assets, each of which has its own yield and its own characteristics in respect of risk, greater or lesser ease of transfer, etc. In principle, the supply of each of these assets affects demand for the rest and demand for goods, through changes in its explicit returns and in the liquidity services that it offers. Hence, the financial determinants of global demand would consist in a vector of

¹²In the case mentioned in the text (which derives from the models of Thompson (1981) and Barm and Gordon (1983) the interplay takes place between the Central Bank and the private sector as a whole. Models have also been proposed which aim at describing the interaction between the Central Bank and the wage-earners (Gale, 1981; Horn and Persson, 1984) or the fiscal authorities (Tabellini, 1985).

assets rather than in a single aggregate.¹¹ Indeed, it would seem that the relation between nominal income and the money supply cannot be represented in general as a simple function of the interest rate.¹⁴ Besides, as is generally recognized, the public's disposition to keep money in their hands depends on predictions which, if the monetary theory with rational expectations is not literally adhered to, may be an autonomous source of changes in demand for goods in relation to given M . Moreover, it seems evident that real shocks can affect expenditure. In brief, the relation between money and demand is not automatic.

Furthermore, there has still been no clear answer to the problem of the reaction of prices to present or predicted changes in expenditure. In the typical monetary equilibrium model, the equation between money supply and demand is combined with an aggregate supply curve, according to which output responds to unexpected changes in expenditure.¹⁵ This implies the adoption of highly categorical hypotheses, both on the formation of expectations and on the operation of the markets. From this latter standpoint, it is frequently left unclear whether the effect of demand on prices would occur directly or through the price of the factors of production. On the other hand, the hypothesis of price flexibility (subject to information on the current

state of the economy) gives rise to certain questions. Many interchanges seem to have a contractual character (explicit or not), which implies slow price reactions to changes in demand. These rigidities are probably not mechanical, but would depend on conditions in the economy and on the agents' conjectures on the subject. There has not yet been any thorough study of the rules of decision-making that would result in the fixing of prices; the assumption of equilibrium, however, is no more reasonable than that of complete rigidity.¹⁶

It would seem, therefore, that a purely monetary analysis does not answer the question as to the cause of inflation and can hardly describe the movements of prices from one period to another. Nevertheless, as the growth of the money supply is a typical component of inflation, any theory should take the monetary aspect of the phenomenon into account. At the same time, if the economic authority reserves the right to issue non-interest-bearing assets, all inflation accompanied by increases in the money supply will have a fiscal component.¹⁷ In other words, a complete description of inflation must consider why the inflation tax is collected and how it is used. This almost inevitably leads to questions of a social and political nature: when certain limits have been exceeded, financing

¹¹ Tobin (1974) in his comments on Friedman, has insisted on the non-neutrality of money owing to the existence of various assets in the public's portfolio.

"The development of models of demand for money with partial adjustment (Chow, 1966) or with the hypothesis of cushioning of shocks (Carr and Darby, 1981), in which demand for real cash balances approximates only gradually to that which results from the classic demand functions, indirectly reveals the difficulties of linking, period by period, the movements of the money supply and of global demand.

"In other words, the prices observed in a period are equal to the prices expected (or to the estimation of the general level of prices that people formulate at the time, with incomplete information) plus a correction that depends on the deviation of real output from its "normal" value. There are other possible hypotheses on price formation compatible with a money-prices causality; in particular this is in keeping with assumptions of a fixed margin over costs. Alchian and Allen (1964) present an analysis of this type, according to which an increase in expenditure acts first on the prices of productive resources with a relatively inelastic supply, and repercussions on the prices of the other goods and services then ensue. This model, however, leaves the explanation of how factor prices are determined pretty much in the air.

¹⁶This analysis is valid in principle for closed economy models. However, neither does the hypothesis of parity of purchasing power seem to be clearly demonstrated in the case of open economies, not only because of the existence of non-tradeable goods, but also because the single-price law is not strictly applied to many goods that play their part in trade (Machinea, 1983). Here also, therefore, it is essential to use hypotheses of behaviour regarding the determination of domestic prices. The current equilibrium models make the general level of prices depend on the exchange rate and global expenditure (because of their effect on the markets for non-tradeable goods); thus the same observations apply as in the case of closed economy equilibrium models.

"This is valid even if the inflation has a real origin. Consider, for example, a system with a fixed exchange rate (for the sake of simplicity it is assumed that the external prices of tradeable goods are also fixed), where technical progress is greater in the industries linked with the external market than in those producing non-tradeable goods (Aukrust, 1977). The relative price of the non-tradeable goods increases over time; this in itself implies a rising trend in the general level of prices. The demand for money also increases. If the Central Bank does not modify credit to the government, it accumulates assets against the rest of the world or against the domestic private sector, which can be interpreted as a use of the inflation tax to augment the net assets of the public-sector. If at some point the public sector decides to make use of these funds, it will have a spending power which is not the counterpart of tax revenues.

through a currency issue indicates that the government is forced to use a somewhat haphazard method of resolving the discrepancy between its capacity to obtain resources and the pressures that determine its expenditure. Reciprocally, to achieve a steady fall in the inflation rate the public sector must at some point renounce part of the credit it obtains from the Central Bank:¹⁸ this implies losses for certain groups against benefits for those most affected by the inflation tax.

3. *Models based on the distribution struggle*

According to the monetary or fiscal theories, inflation results in the last resort from increases in nominal expenditure induced by the economic policy pursued. Another explanation associates inflation with persistent rises in production costs. This relationship can be understood, in the first place, with reference to the way in which prices are fixed: the theory would then be identified with the assumption that the prices of goods are directly determined by factor prices. Nonetheless, although there is clearly a close connection between costs and prices, this still does not define the cause of inflation: it is necessary to explain how these costs are established and what is the set of exogenous variables that determines the price system.

In distribution struggle models, prices are established as the result of a social conflict (Kalecki, 1943; Aujac, 1954; Jackson and Turner, 1975; Moore, 1979). Competition among social groups is manifested in fiscal policy. As mentioned above, the existence of high and persistent deficits might generally be regarded as reflecting the difficulty of reconciling the demands of public expenditure with resistance against taxation. The models discussed here focus on another aspect of the distribution question. It is clear that changes in relative prices

have effects on distribution: the suppliers of a product, or productive resource, benefit if their sales price increases in relation to the rest (and the amounts sold are not too much reduced). In traditional equilibrium analysis, prices (and the resulting distribution) derive from the operation of the markets, in competitive conditions. According to other theories, some basic prices, such as wages, are determined by the action of social groups. The attempts of the various groups to improve their real income would give rise to increases in costs and prices (since each group can only influence its own price); in some periods wages would be in the lead and in others the prices of the different categories of goods, according to the relative power of workers and entrepreneurs.¹⁹ The sequence of actions and reactions of these groups would bring with it inflation. In other words, inflation would result from a collective interplay in which wages and margins over costs are determined without equilibrium being reached. The more intense the conflict, the faster will prices rise, that is, if the groups simultaneously try to obtain marked improvements in their real income.²⁰ Moreover, if there are indexing instruments (defined institutionally or applied as implicit rules), the price variation in one period will be transferred to subsequent periods: an exacerbation of the distribution struggle would produce not only a rapid rise in prices but also a persistent increase in inflation.

To complete the model the behaviour of monetary policy would need to be defined. Given the assumption that prices and wages respond mainly to costs and distributional considerations, the conflict would confront the authorities with an awkward dilemma. A

¹⁸In the case of Argentina, three broad groups are traditionally distinguished (workers, urban entrepreneurs, agricultural entrepreneurs) which, in varying alliances according to the moment, would define the characteristics of the conflict. According to these studies, the bargaining capacity of the groups and the structure of prices would be particularly influenced by the external payments situation (see, among others, Ferrer (1963); Brodersohn (1974); Canitrot (1975); Mallon and Sourrouille (1975)).

¹⁹Of when there are pressures to obtain an increase in the relative prices of some products with flexible prices, which generate resistance to the fall in the real income of the groups affected. In this context, moreover, the government might also initiate or accelerate the sectoral struggle by applying policies aimed at increasing the real value of the prices it controls.

²⁰The reduction in the deficit financed by issue need not be simultaneous with the fall in the inflation rate, because with the fall in the rate of price increases there will presumably be a rise in demand for money. The argument in the text ignores the possibility (theoretically conceivable) that inflation has exceeded the level that maximizes the inflation tax; i.e., that the rise in prices is such that an additional increment in the inflation rate will produce a more than proportional decrease in holdings of real cash balances. It does not appear that this possibility is of practical importance, except perhaps in cases of hyperinflation.

restriction of demand would have an effect on the amounts produced and only very gradually on prices. Prices and wages can respond to expectations, but these last would not be based on announcements of monetary policy as in equilibrium models positing rational expectations. Thus, when a rise in prices occurs, the options for the government would be either to confirm the rise by expanding global demand or else to accept a decline in activity. From the standpoint of these models, monetary policy is generally endogenous; the level of prices is "decided" by private groups or individuals and the government adjusts its conduct (though not necessarily immediately) to this decision.²¹ In other words, distribution struggle theories are associated with a hypothesis on the economic policy régime which postulates that government action follows in the wake of the private sector, in opposition to the monetary and fiscal hypotheses which assign the leadership to the authorities.

The hypotheses summarized above highlight the distributive aspect of price and wage variations, which is obscured in equilibrium models. They also underline the limitations of traditional analyses in describing the relations between firms and workers: production generates quasi-profits, whose distribution is a matter of bargaining, especially in the case of short-time horizons. At all events, distribution-struggle models frequently fail to clarify the hypotheses of behaviour which would explain the conduct of groups and individuals (Hirschman, 1985). This poses a number of interrogatives. Even if nominal wages are established for a group of enterprises (or for the economy as a whole), in principle each firm determines its prices individually: real wages, therefore, are not the result of collective bargaining. How are the strategies of the different parties determined when wages are settled, and how are prices established once costs are known? In any case, it seems to involve a complicated game, in which the participants

²¹The money supply might also vary with an endogenous response of the fiscal deficit to prices owing to the existence of lags in the collection of taxes (Olivera, 1967; Dutton, 1971; Tanzi, 1977; Canavese, 1985). In this case, a once-for-all increase in prices might give rise to a persistent acceleration of the growth of the money supply.

have to act on the basis of conjectures as to the measures likely to be taken by the other agents and by economic policy, without much precise knowledge of what will happen in the end. In view of the complexity of the problem it is probable that rules of behaviour are adopted which do not incorporate all the information potentially available (since that information is not necessarily reliable and since it is difficult to draw inferences on the basis of the data).²² But it is still a moot question how mechanically such rules will be applied as the transfer of costs to prices or the increasing of wages on the basis of past inflation, and how these rules will be adjusted in face of abrupt changes in circumstances, produced, for example, by a modification in the economic policy régime.²³

The impression derived from the hypothesis of a price-wage spiral is that of an economy which does not succeed in determining a fairly stable set of relative prices: if a group wishes to improve its relative situation, its action is neutralized after a time by the reaction of other prices, so that the succession of moves does not achieve a well-defined result. An immediate question is: how does the inconsistency in the price system arise?²⁻¹ An initial possibility appears if some group attempts to take advantage of lags in price adjustment to obtain a temporary improvement in its real income; in the short run, demands are relatively inelastic, and, although the action of the said group may be counteracted at some moment by a rise in other prices, there may at any rate be a potential gain. This line of conduct calls for several conditions: co-ordinated action (more easily sustainable over short terms), the absence of anticipatory reactions on the part of other agents; and a not very vigorous response as regards the quantities demanded. This last appears the more probable,

"Okun (1981) discusses the problems associated with price formation and attempts to rationalize the existence of rigidities. Frenkel (1984a) contends that wages respond to institutional conditions and that if these conditions are established, the resulting indexation of past inflation is a system that saves the parties the labour of procuring and processing information.

²²Frenkel (1983) points out that the margin over costs applied by firms would not remain fixed in face of such changes.

²³This refers to the case in which it is assumed that the distribution struggle initiates the acceleration of price increases. It should be noted that this case is different from that which results from the defensive reactions produced when wages and prices vary in order to adapt to an already rampant inflation.

the more erratic is the movement of overall prices. Thus, in conditions of already manifest instability more frequent price rises of this type can be expected.

A second form of distribution struggle may occur if prices and wages are established in an expectation of permanent relative improvements, which is later disappointed. This would happen, for example, if the real wage envisaged by the workers became incompatible with the profit margin policy of the firms. The quest for a viable system of relative prices may give rise to successive increases in wages and prices. In a situation of this type the struggle would be a symptom not only of social tension but also of economic imbalance. These incongruities seem more likely to occur when some exogenous factor distorts relative prices or reduces real income. The real wages demanded and the margins over costs presumably depend on the estimates made on the basis of normal values, sustainable in accordance with experience. Although it may be recognized that there has been a change which diminishes global income, its repercussions on prices and remunerations as regards particular groups may not be easy to establish in advance. There is no guarantee that the incomes hoped for will be equivalent to potential income. Attempts to maintain relative prices that were normal in the past may push nominal values above ordinary levels. In other words, the learning process which leads to a new price system would accompany the effective appearance of surplus supply or demand on the markets, and would imply a rise in prices as a whole.

At all events, although the distribution struggle may be an autonomous source of price increases, it is obvious that this inflationary mechanism would function the more intensely, the more flexible was economic policy. Although it is true that acute distribution conflicts hamper the regulation of nominal demand, it is no less certain that a purely passive policy has an evident bias towards inflation. In setting prices, each individual or group will take it into account that, if the rest determine a higher inflation rate, demand will grow as a result. An upsurge of some prices, or a threat that this will happen, will therefore cause reactions in the other prices. Hence it is probable that inflation will

accelerate. The limit would be reached when price increases attained a rate which the authorities were not disposed to support. This would mean that economic policy could not escape the implicit dilemma; there must be a point at which the unconditional maintenance of activity will be renounced in order to avoid bigger price increases.

4. *Structural/ inflation models*

The term "structural" is ambiguous. Both the mechanisms of price formation and the stimuli that in the last instance act on them depend on the specific features of the economy, on its social composition and on the way in which economic policy is determined. A high and persistent fiscal deficit, for example, can undoubtedly be attributed to structural causes, if this is the term used for the group of pressures by which it is originated. Structural inflation hypotheses, however, refer to a specific class of models, with well-defined assumptions as to the non-monetary origin of inflation (Sunkel, 1958; Prebisch, 1961; Seers, 1965 and 1964; Ruggles, 1964; Olivera, 1964; Frisch, 1983, chapter 5).

According to the distribution struggle hypothesis, inflation is symptomatic of a maladjustment in the determination of relative prices. In contrast, for some models inflation can be interpreted as a mechanism that facilitates the establishment of relative equilibrium prices when there is variation in sectoral supply and demand. In the event of downward rigidity of nominal prices,²⁵ it is impossible to achieve a balance by keeping the general level of prices fixed: there are no forces tending to eliminate excess supply of those goods whose relative price should decrease. In contrast, if global demand increases at least to the point at which the nominal prices of these goods remain fixed (which implies that the other prices rise) the constraint caused by rigidity can be avoided. In other words, when changes occur in technology, in preferences, etc., which would require a modification of relative prices, this can occur

²⁵ A distinction is frequently made among goods according to the degree of excess demand-elasticity in their prices. In some cases, the response would be relatively rapid; in others it would occur very slowly (Hicks, 1974).

without distortions only if certain nominal prices are not forced downward. If the authorities adopt a policy of maintaining output volume, the result is a rising trend in prices as a whole. The greater is the frequency and the larger the scale of intersectoral transfusions, and the more inelastic is sectoral supply and demand, the more severe will inflation be; this depends on the structure of the economy. From this viewpoint, therefore, the chain of causality would extend from the variation of relative prices —due to real factors— to inflation, through a régime of *lais ser-faire* policy, which permits a price slide in order to facilitate the transition from one set of prices and quantities to another.

These theories indicate that some generalized price increases do not necessarily derive from global variations in supply and demand, but may also originate in shifts between sectors. Although the argument is based on a very schematic theory of price formation (and the downward rigidity of nominal prices seems to lose importance as inflation rises), it is evident that in many markets equilibrating price responses occur only slowly. In the case of some goods, the initial reaction to an excess of supply is a reduction of the quantities produced, whereas in respect of others (such as agricultural products) there are more pronounced price adjustments. Consequently, it is probable that an increase in the relative prices of the second group of articles will lead to a rise in the general level of nominal prices; these increments may be transmitted in due course if there is a diffusion mechanism (such as indexation rules or induced changes in the fiscal deficit) or if the prospect of reduced activity leads the authorities to ratify the increases.

In the initial expositions of the structural inflation hypothesis emphasis was laid on the inelasticity of agricultural supply, which was attributed to technological and institutional rigidities and to inflexibility in respect of a reduction of nominal prices. A group of more recent studies (Canavese, 1982; Frenkel, 1983 and 1984a; Lopes, 1984; and L. Taylor, 1983, chap. 6, 10) also adopts a non-monetary conception of inflation, but with different characteristics. The hypotheses on price formation have two main elements. In the first

place, goods are divided into two classes: those with flexible prices (typically, raw materials) and those with 'managed' prices; the prices of the latter would be determined by the application of relatively constant margins over costs. Secondly, it is assumed that wages follow an indexation rule based on the variation of prices in former periods, and are little influenced by predictions of future prices and excess demand for labour.²⁶ Hence the rate of inflation has a pronounced component inertia, since the indexation of wages transmits price increases into the future;²⁷ upswings in inflation would be mainly due to increases in the relative values of the goods with flexible prices.²⁸ It can also be deduced that real wages would vary in inverse proportion to the inflation rate and that the changes in global demand would bring their effects to bear almost entirely on the amounts produced and very little on prices.

From the analytical standpoint, these models show how difficult it is, with the equilibrium approach, to explain price formation and especially wage formation. In the first place, they call in question the implicit assumption of instantaneous wage-setting: labour relations tend to be long-lasting and their renegotiation costly; wages would therefore form part of a contract (perhaps implicit) which is not constantly reviewed. Hence nominal wages would show appreciable rigidity over short periods. Furthermore, attention is drawn to the costs in terms of information and conflict that would be implied by complex wage regulations, using data which are not generally available or easy to obtain (Frenkel, 1984b). From this standpoint indexation in respect of past inflation would be, in a context of rapid price rises, a reasonable method of stabilizing

²⁶This type of model can be combined with the distribution struggle hypotheses through episodic changes in the margin over costs or in the degree of indexation of wages.

²⁷Inflationary inertia has also been emphasized by Gordon (1981) and Tobin (1980). Fisher (1977), Phelps and J. Taylor (1977 and 1980), among others, have discussed the effects of contractual rigidities, although, in the models in question, wages are determined on the basis of forecasts.

²⁸This conclusion is similar to that of the traditional structuralist model. In the latter, however, an attempt was made to explain price increases, whereas here the analysis refers to changes in the inflation rate. Moreover, recent models differ from that of Olivera (1964) in that no reference is made to general equilibrium.

labour relations, without resorting to procedures inapplicable in practice. For this reason, wages would be set with retrospective criteria, as a function of the price changes taking place between occasions of adjustment, and not on the basis of expectations concerning future inflation.

Wage indexation is current practice in inflationary economies; it facilitates the fulfilment of contracts in conditions of rapid price variation and is a relatively inexpensive formula to negotiate and apply. Obviously, in an economy in which indexation is widespread, inflation presents an inertia which is a particular obstacle to the application of stabilization policies based exclusively on restriction of demand.

Some questions, however, remain to be answered. When nominal wages are fixed, one of the main variables taken into account is the rise in prices since the preceding adjustment. But the indexation system based on past inflation is imperfect, since it fails to maintain the purchasing power of the contract if the price trend is modified, nor does it incorporate other real influences on wages. It would be of interest to specify in what conditions indexation is used as a means of avoiding frequent renegotiations, and how and with what frequency the wage base is reviewed. To do this, it would be necessary to define with some precision the objectives of the parties, their attitudes and the costs of negotiation and application of different types of contract, in addition to the institutional context.²⁹ The theory has not yet been clarified on this point: the current models have reached firm conclusions, although various hypotheses have been put forward which would account for a certain rigidity in wages.⁵⁰ In particular, it remains to explain the existence of different ways of drawing up contracts according to the economy and the period in question (wages fixed in nominal terms with adjustments varying in

frequency, more or less complete indexation subject to price indexes or other variables, with different lags and adjustment periods) and, above all, the transition from one mode of procedure to another.*¹ In this connection, it would seem that methods of wage (and price) fixing depend on the economic policy régime. In particular, indexation with a retrospective criterion stabilizes the real wage expected, if the past rate of inflation is a good indicator of that which will prevail in the period covered by the contract. The fulfilment of this condition will depend on the anticipated behaviour of the prices fixed in the public sector and on the monetary aggregates (through their effect on flexible prices, margins over costs or the actual expectations of other sectors). Although it is a fact that the costs of transaction might account for the continuance of certain rules even though they imply a margin of error, it is no less true that methods based exclusively on the extrapolation of past behaviour patterns will probably not be applied at moments of visible change in economic conditions. In other words, it would prove impossible for a theory of prices and wages to omit consideration of expectations (that is, prices, in the last instance, are fixed prospectively) and this would reintroduce (albeit at moments of pronounced variations) global demand into the explanation of 'managed' prices. In any case, since it is very probable that the response of flexible prices and of expectations to demand may be neither complete nor uniform, and renegotiation has its costs, the presence of contractual rigidities will be an important element in the analysis of stabilization policies.

5. Summary

The debate on the causes of inflation is often presented in terms of an option between different typologies: inflation would appear to have a well-defined nature that would need to be

²⁹The importance of institutional conditions has been underlined, among others, by Cortázar (1983) and Frenkel (1984a). The latter author avers that wages theory is necessarily historical and that it is not possible to formulate an explanation of a general type.

⁵⁰For a summary of the current discussion on the theory of contracts and price- and wage-fixing, see Azariadis and Cooper (1985), Azariadis and Stiglitz (1983), Flanagan (1984), Klein (1984), Lazear (1984), Weitzman (1984) and Yellen (1984).

*¹A particularly interesting topic is that of the speed with which the rules for price and wage formation adapt themselves to the current rate of inflation. Gerchunoff (1985) comments that, after the German stabilization of 1923, wages were once again fixed in nominal terms (in local currency) with considerable promptitude, but their period of validity remained for many years shorter than that observable in other European countries.

discovered. This attitude is not absurd from an analytical point of view; besides, a precise explanation of inflation would assist the design of policies. It happens at times, however, that the discussion assumes a somewhat methodological aspect: while some demand an explanation of the creation of money and its effects, for example, others insist on taking wage variation into account. In point of fact, a reasonable complete theory should incorporate all these issues at one and the same time, so as to identify exogenous influences and show the mechanisms by which they are transmitted to prices. There is no theory sufficiently developed to permit precise inferences of this type.

Single-cause explanations have their dangers. It is true, for instance, that there are no cases of sustained inflation in which there has not been a rapid increase in the money supply. It also seems clear that predictions on the behaviour of monetary policy play a part in the formation of prices: these last will be the more volatile and resistant to downward movements, the greater the likelihood that global demand will adjust itself passively to prices. But these observations do not explain inflation. A purely monetary model oversimplifies decisions on prices (in assuming that these are determined according to an equilibrium in which the agents take into account only the predicted evolution of the money supply) and leaves unanswered the question as to the nature of the pressures that act on monetary policy. In like manner, the models that postulate mechanical rules for price- and wage-fixing do not clearly explain how individuals or groups would arrive at these decisions, nor how economic policy would react to them. Obviously, it is not that the factors that cause price increases are totally unknown, but that the knowledge is vague. The more erratic the inflationary régime or the more sudden the changes in economic policy, the greater will be the uncertainty (both for the purposes of analysis and for decision-taking by the agents).

It is sometimes possible to identify specific circumstances that may step up the rate at which prices rise. In this connection, it would appear that the marked increase in external debt services has created conditions highly propitious to inflation. In the first place, the transfers abroad imply a higher real exchange rate, which

tends to be reached by means of nominal devaluations which push up prices. Moreover, as long as no new structure of relative prices has been established (and to some extent accepted), the defensive reactions of the sectors most affected may give rise to price-fixing inconsistencies of the type mentioned. Lastly, as a large part of the debt has been contracted or taken over by the public sector, an additional pressure on the budget is created. When, furthermore, taxation capacity is limited (a situation which is aggravated by the fall in real income), it is to be expected that greater recourse will be had to the inflation tax.

Again, as another example, internal financial crises (due in part to real factors or to weaknesses in the banking systems) might give rise to intense demand for inflation to reduce the real value of liabilities. The mechanism by which inflation is generated in this case may initially imply greater monetary expansion or an increase in certain prices. According to where the accent is placed, attention will be concentrated on these mechanisms or on the particular origin of the inflationary pressures. This once more illustrates the ambiguity of the question concerning the origin of inflation.

In effect, the eagerness to discover a single explanation may suggest that inflation (above all when it is intense) is a more systematic phenomenon than it really is. Large fiscal deficits, inconsistencies in price-fixing and resistance to a reduction in the rate of price and wage increases tend to go together and to influence one another: once inflation begins to soar it seems difficult to assign it a clearly-defined cause. Something similar happens when price variation is considered from one period to another. It is frequently observed that the money supply increases over and above prices; at other times wages take the lead, or the exchange rate, or another group of prices; and on some occasions prices rise for no apparent reason. These sporadic advances or lags do not define the type of inflation at each moment in time, but reflect the erratic nature of price-fixing.

An inflationary economy is different from a stable economy and not only because the nominal variables grow at a greater speed in the one case than in the other. The haphazard rise in prices, whether because the government can find

no means other than a money issue to finance its expenditure or because there are irreconcilable claims which lead in their turn to a policy of accommodation, points to a state of more general perturbation. It seems significant that many of the major instances of inflations have occurred in circumstances of political instability or economic crises, that is, when there are exacerbated distribution conflicts or when the economy is in a condition of manifest disequilibrium. In the last instance, an acute inflation seems symptomatic of a problem of

social functioning. From this standpoint, the most important consequences of inflation would be associated with the difficulties in decision-taking which characterize a state of great uncertainty. In the same way, stabilization appears not only as a change in the handling of certain policy instruments, but as a process which results in modifications of the different types of conduct (on the part of both the government and the private sector) which generate inflation.

II

Effects of inflation

Analysis of the consequences of inflation is usually based on models in which inflation is neutral (in the sense that the nominal variables—prices, wages, money supply—grow at the same rate) and completely predictable. Hence the main effect of a continuous rise in prices would be a distortion in money holdings: the higher cost of maintaining assets without interest reduces demand for real balances so that individuals lessen their consumption of liquidity services (Bailey, 1954; Friedman, 1969). Attention has also been drawn to the distributional implications of unforeseen changes in prices (Kessel and Alchian, 1962). These effects are by no means negligible, but they do not constitute an exhaustive list of the consequences of inflation (Leijonhufvud, 1977).

One of the features of situations of price volatility is that the agents are involved in a game of complex conjectures, in which they possess little reliable information. In such cases neither the conduct of the private agents nor economic policy is easy to predict. Economic policy tends to be influenced by a variety of requirements (to sustain the level of activity, to maintain external equilibrium, to regulate credit, to influence prices, to distribute income or net wealth in a particular way), whose priorities vary according to the aims of the authorities, the state

of the economy or the interpretation placed on the latter. If policy is unstable it is more probable that the expectations of the public will be volatile and differ for different individuals,⁵² a factor which affects decisions on prices and asset holdings. The diversity of expectations, frequently associated with erratic changes in public sector prices, is reflected in the haphazard evolution of the different categories of prices." Then neither the private agents nor the government can predict with accuracy the behaviour of the markets. This in turn creates problems for economic policy. In these circumstances there will probably be no clear-cut system of policy determination, and private decisions will be unsystematic and mutually incompatible. The costs of inflation derive not only from price increases in themselves but also, and mainly, from this disorderliness.

⁵²Leijonhufvud (1981) distinguishes between well-constructed expectations, that can be described as based on the past conditions of the economy and would be characteristic of relatively stable situations, and ill-constructed expectations, which do not conform to a well-defined model applied by the agents as a whole.

⁵³It is well established that the variability of relative prices increases with inflation (for the Argentinian case, see Helman, Roiter and Yoguel (1984)). The explanations put forward range from structural inflation models to those in which the variation of relative prices is a function of the variation in the random component of the money supply (Cukierman, 1979).

How far inflation disturbs economic activity will depend on its intensity. The greater the existing instability, the more appreciable will be its effects.

i) The rise in prices stimulates demand for liquid assets distinct from the means of payment, whose real value rapidly depreciates. One of the effects of the flight of money is the increased importance acquired by foreign exchange, not only as an accounting unit to express prices, but also as a means of maintaining purchasing power and even making payments. As a counterpart to the larger holdings in foreign currency (which do not produce interest in the country of issue), residents need to dispose of goods or other assets, which represents a cost for the economy as a whole. Moreover, the attempt to reduce the amount of the monetary balances diverts resources into short-run financial operations and into the quest for methods of synchronizing payments and collection, and creates difficulties in the organization of trade transactions. Besides, not everybody has the same facility for avoiding the inflation tax: this probably falls mainly on the lower-income groups;

ii) The volatility of prices leads to an active quest for information. But despite this effort (which withdraws resources from productive activities), the agents are faced with much greater uncertainty than in conditions of stability. They run the risk of incurring heavy losses and at the same time have the chance of making large profits, which depend solely on the forecast of inflation. This generates a boom in speculation in which most people find themselves induced (or obliged) to take part. Many transactions are based entirely on the existence of different opinions on future price trends: similarly, trade operations are not effected which would be carried out in more normal circumstances. At the same time, the difficulty of making forecasts is all the greater, the more extensive is the time horizon of decisions. People then prefer to take up flexible positions which can be modified as new information is received. This may probably lead to the postponement of investments which take time to produce results. Something similar occurs with economic policy: measures aimed at promoting growth are less likely to be

considered lasting when, as happens in cases of high inflation, the conduct of the government is regarded as unstable; this entails an increase in the incentives required to obtain a specific response;

iii) The contraction of the time horizon of decisions is more evident in financial markets. As uncertainty over prices increases with the length of the term, contracts with fixed interest are negotiated for short periods. The possible options for longer-term financing also have their drawbacks: variable interest systems involve the risk that the real interest rate will change, while the variability of relative prices makes it difficult to find appropriate indexes for debt adjustment. Hence the provision of funds for investment is adversely affected;

iv) Frequent price changes quickly invalidate the information available to consumers. The cost of seeking better buying opportunities rises with inflation. Hence price competition becomes a less expedient strategy for business firms than when conditions are more stable;

v) In preferring flexible measures, the agents strive to safeguard themselves against the effects of unexpected changes in prices. Nevertheless, inflation inevitably produces random redistributions of incentives and income. Price instability may reflect a distribution conflict, but also acts as a feedback to it. When systems of automatic wage adjustment are applied, their imperfections produce unexpected changes in real remunerations and thereby constitute a cause of friction; when they do not exist, adjustments become more frequent. Since it is impossible to set up a well-defined system of contracts in real terms and frequent and pronounced changes occur in relative prices, each round of negotiation becomes a source of conflict.

In situations of erratic inflation, therefore, measures directed towards growth and permanent income redistribution are relegated to a secondary plane in face of a chaotic short-term game with no precise solution. Given that the problem lies in the behaviour pattern of the public sector and the private agents, its correction implies a change in those lines of conduct. In other words, stabilization means the achievement of a situation in which the

economic actors are in a better position to formulate plans for the future and in which it is more probable that decisions will be mutually compatible. To put it another way, price trends should be more predictable; which calls for an economic policy such that will guide private decision-making towards this end. It will be difficult to attain this result with high inflation rates. Consequently, one of the conditions for

stabilization is that the velocity of price increases should be "reasonable". To reduce instability it is also essential that inflation should be relatively predictable, so that the agents can formulate fairly trustworthy expectations. The problem of stabilization is therefore twofold: to reduce the rate of price increases and at the same time to ensure that this reduction shall be lasting.

III

Stabilization policies

1. *Stabilization as a problem of economic policy*

The designing of stabilization policies poses several difficult questions: to what point is it desirable and possible to undertake unconditional economic policy commitments; what price track is it expedient to choose as a goal for stabilization; what does this imply for the management of policy instruments; and what should be done to ensure that the transition to a lower and more stable inflation rate involves the least possible cost.

An initial question relates to the time horizon of policies. Economic models tend to represent decisions, in relation to time, as the solution of problems in which strategies are formulated to cover all future periods: the line of conduct to be adopted at the present time forms part of a sequence of measures and depends on the contingencies that are expected to arise in time to come. These models are not entirely in keeping with reality. In point of fact, the usual behaviour pattern is quite different: decisions are adopted one by one, without any precise definition of future measures. It is natural that this should be so, in view of the difficulties of obtaining and processing information. Stabilization policies clearly pose a dilemma between predetermining (and announcing) the evolution of certain instruments throughout a

fairly long period, or allowing a flexible adjustment of policies to circumstances.

Latin America has known what it is to embark on numerous programmes that have proved impossible to sustain: the alternation of attempts at disinflation, crisis and new attempts has been a major factor of instability. This suggests the undesirability of basing policies mainly on temporary expedients, since this may affect confidence in their results (and thereby hamper the transition towards lower inflation rates) and make programmes, once initiated, more difficult to keep up. Neither is it probable, however, that a stabilization programme can propound a complete set of permanent policies. On the one hand, if it starts with a situation of high inflation, the confusion that this implies will preclude the fixing of too extensive a time horizon. On the other hand, since stabilization in itself represents an appreciable change in the economy, it is impossible to make accurate forecasts of the conditions that will exist during and after the period of transition. From this standpoint, it seems reasonable to regard stabilization as a preliminary step, frequently indispensable but not necessarily definitive, towards the establishment of lasting policies.

Although it is clear that changeable policies are very costly, in the longer term a question also arises as to the expediency of defining strict rules for the management of certain instruments. A

case in point is monetary policy. It has been proposed that the Central Bank should act in such a way as to hold constant the growth rate of some monetary aggregate.¹⁴ According to the advocates of this system, this monetary regulation would solve the problem of price instability and at the same time eliminate a large part of the fluctuations in aggregate output; if the means of payment grow at a predictable rate, there will be a reduction in the unforeseen component of global demand which, according to the traditional hypothesis, causes the cyclical changes in production

These arguments, however, are based on very categorical assumptions as to the association between money and prices. In actual fact, a régime of fixed monetary growth would have several disadvantages. To begin with, the establishment of the rule in question as part of a stabilization programme (and, therefore, accompanied by an appreciable change in the growth rate of the money supply), may have a considerable initial impact on prices, since it will presumably increase demand for real balances. In these conditions it is almost impossible to know what the equilibrium price level would be. Thus the regime, instead of facilitating the formation of expectations, would be adding a further element of uncertainty. After a transition, the function of demand for money varies according to the changes in the type of assets available and the customary forms of payment. Even assuming perfect adjustments to equilibrium, predetermination of the increase in the money supply is not a necessary or sufficient condition for making the inflation rate predictable. Besides, it does not seem advisable to restrict the monetary authorities' capacity for action to a point where they cannot apply anticyclical measures in the credit markets in response to disturbances of real origin.¹⁵

Thus, although the definition of a more predictable monetary system is undoubtedly an important part of a stabilization process, it

would not be appropriate to aim at establishing a rigid policy rule. In general, there is a dichotomy between making policies less predictable, and taking the risk of announcing strict commitments on the future course of policy instruments, which reduce the flexibility of policies and may be uncertain of fulfilment. In practice, it seems difficult to have unconditional rules relating to an indefinite time horizon. Even though it might be useful to announce (and fulfil) specific objectives in the case of some instruments, the stabilization of expectations for a fairly prolonged period should probably be based on something rather more vague, but at the same time simpler: a consensus clearly expressed by the government and shared by a large part of society, to the effect that price volatility is very costly and therefore efforts should be made to hold prices to a less uncertain course. Rather than a unilateral announcement of unchangeable political rules, this would imply the existence of an implicit agreement on an objective and public confidence (warranted by events) that the authorities will endeavour to achieve that objective and maintain it.

At all events, a stabilization policy requires that the target set (even though imprecisely) for the inflation rate should be attainable with reasonable certainty throughout a period that stretches beyond the immediate future. To a large extent this is a fiscal problem: the inflation rate established as a target must be compatible with an amount of inflation tax revenue that covers the needs of the public sector. It is certainly not easy to foresee the future pressures that will be exerted on fiscal policy, or the evolution of demand for assets. Clearly, however, when the aim is to mitigate inflation, it is also admitted that a limit must be set to financing through money issues: policy should therefore aim at making a lower inflation rate defensible, taking these restrictions into account. That is to say, the fiscal system must find a substitute for Central Bank credit and, throughout the stabilization process, the income redistributions that are effected through the budget should be kept in line. The capacity to generate tax revenue must correspond to the volume of expenditure; among other requisites, this presupposes fairly accurate identification of the groups that would contribute resources.

*See Friedman (1959) and Lucas (1980). The general argument in favour of policy rules (as against discretionary management of the instruments) is developed in Kydland and Prescott (1977).

¹⁵Leijonhufvud (1983 a and b) discusses the problems stemming from a monetary system without rules and those which would arise in systems without flexibility.

Moreover, the distribution struggle by way of prices should be waged coherently: obviously, unless cost variations are accommodated through rises in global demand, if one group attempts to augment its share of real income with a nominal increase, others will suffer a loss.

In the last resort, stabilization policies always involve decisions on distribution: it is a matter of replacing redistribution mechanisms that create inflationary pressures by others that do not produce these effects. As a result, while stabilization is not a zero-sum game, in all likelihood some groups will be adversely affected. This political aspect of stabilization is probably one of the most complex, especially if it is borne in mind that acute inflation goes hand in hand with serious distribution conflicts. In Latin America the quest for price stabilization is often linked with policies of a conservative type, indifferent to income distribution, or producing transfers detrimental to the lower-income groups. In theory this distributive bias does not seem to be a necessary condition of stabilization policy. In fact, the latter will be more likely to succeed if it can be reconciled with a socially acceptable income distribution.

... In the general terms of this discussion, it would appear that a programme is the more solid, the more clearly defined are the inflation targets that are set up and the policies that will be applied over a fairly extensive time horizon. But these conditions are often difficult to meet. And in any case the final result of policies depends basically on the handling of the transition. This poses two very controversial questions: at what speed and with what instruments should a stabilization programme be tackled.

2. *The transition*

For stabilization to be effective, an indispensable requisite is that nominal prices and wages, on the one hand, and global demand, on the other, should increase at a lower rate. The problem is to •define how and at what speed this deceleration will take place on reasonably synchronized lines and with the least possible disturbance of economic activity. The debate on the subject usually assumes that the authorities regulate demand; hence an attempt is made to learn in

what way price adjustment will be brought about. In traditional analysis the relation between prices and quantities is expressed with a short-term Phillips curve: prices depend on expectations and on excess demand for goods. If expectations are based on past inflation or if there are contractual (or other) rigidities which hinder price variations, a reduction in nominal demand will necessarily create a decline in activity. The weaker the response of prices to the decrease in output and the more abrupt the deflation sought, the greater will be the decline. This type of argument favours a slowing-down of inflation though a gradual policy,⁵⁶ particularly through successive reductions in the growth rate of the money supply; during this process, there would in any case be a period of diminished production.

This view has been questioned by writers who use the hypotheses of rational expectations and market equilibrium. This line of thought assumes that contracts, explicit or implicit, tend to be flexible, and adjust themselves to changes in economic conditions. Thus there would be no curb on price adjustments other than the deficiencies of current information. Inflationary inertia would disappear if the forecasts of the public varied with global demand. In that case, stabilization could be rapidly achieved and there would be no reason for it to be accompanied by a recession. Moreover, the analysis is based on the hypothesis that expectations incorporate all useful information (in so far as the data are available). If inflation ultimately depends on the money supply, price forecasts would be based on the monetary policy anticipated. Consequently, if the government is in a position to create a belief that there has been a permanent change in the monetary system, of such a kind that global demand will be from that moment compatible with price stability, expectations and prices themselves will be immediately adjusted. Monetary expansion must not necessarily be curbed abruptly, since the reduced expectations of inflation stimulate demand for money. But

⁵⁶On this point authors holding different theoretical positions seem to agree. See, for example, Laidler (1975, chap. 4) and Gordon (1982). Cagan (1979, page 224) suggests that the best possible policy is halfway between a very slow reduction and the opposite extreme.

there will certainly have to be a visible change in fiscal policy: a marked reduction in current deficits and especially in those foreseen for the future will be essential, to demonstrate beyond question that the government will not need to have recourse to the inflation tax."

Aside from the specific details of this debate, it seems clear that the choice between gradual or shock approaches depends on the initial conditions. When inflation is moderate it is probable that many relatively long-term contracts (in respect of wages or credit) have been negotiated in nominal terms and on conditions which reflect the growth observed in prices. Irrespective of the pace of adjustment of expectations, a slow deflation would affect the real value of such contracts less than a rapid one. Furthermore, gradual policies are potentially flexible: they permit the use of information progressively obtained in accordance with the reaction of the economy. But these possible advantages are not equally patent if inflation is very high at the start. In these cases the inertia of the contracts is less (although it does not disappear completely, except perhaps in hyperinflations), because the very instability of prices leads to a shortening of the periods covered by agreements. Furthermore, a prolonged transition may signify a lengthy period of uncertainty in which the public will continue to take *ad hoc* decisions for want of a well-defined longer-term prospect. The very flexibility of the measures, moreover, may create the impression that they are reversible, which would make a change in expectations harder to bring about and would increase the pressures on policies.

The shock approach avoids these problems, although it imposes strict conditions for obtaining good results. Once it has been announced that inflation will drop abruptly, it is essential that this effect should be produced, that the costs of the adjustment will be such as not to call in question the viability of the policies and that the government should use its instruments

to sustain the stabilization. There is little possibility of learning *en route*, especially in the initial stages of the programme: policies must be sufficiently well-defined and control over the instruments effective; the government, also, should perhaps be willing to subordinate some of its other objectives to the achievement of a lasting effect on prices. This underscores once again the need for social consensus on the anti-inflationary target, but it also implies a marked demand for consistency in the policies adopted: a shock programme, by its very nature, is difficult to reverse and its effectiveness depends in part on the public's perception of this fact; the costs of failure to obtain the desired results are consequently high. But consistency is defined in different ways by different theories, whose strict validity or invalidity may be in doubt. Uncertainty as to the "true model" of the economy is particularly important in shock strategy; in so far as this is taken into account, it is probable that policies may not correspond to a scheme that can be exactly fitted into any particular theoretical framework.

At all events, the rational expectations thesis brings to the fore several important questions. If the determination of the general level of prices can be represented as a result of action by the government and by private individuals or groups, which is influenced by the behaviour pattern that each agent hopes the others will adopt, one of the keys to stabilization will be that the authorities can assume the leadership in the game, or, in other words, that they can persuade the public to take the policy announced as a datum on which to base their decisions. This means, in particular, that the government must be able to regulate the money supply without being harassed by fiscal needs, so that it can progressively adjust liquidity in accordance with demand for money at a lower inflation rate. The more convinced the public is that the government has this capacity, the less will be the risk that prices will not respond to the policy.

However, this reasoning does not define the whole set of conditions for successful stabilization. To begin with, the conditions of credibility would need to be determined: when can the authorities be assured that their announcements will be incorporated into the decisions of the public? Although an opinion on

¹²The argument has been developed by Sargent (1981 and 1982), who bases it on the experience of the European hyperinflations, and also by Bomberger and Makinen (1983). However, Dornbusch (1985) has raised doubts as to whether this model is strictly applicable to the case of German inflation in the 1920s.

this might be given in each specific case, credibility is a somewhat vague concept.⁸ Moreover, it does not seem clear that an announcement of a radical change in fiscal or monetary policy, even though credible, will give rise to an appreciable modification of expectations and prices.⁹ Aside from the possible existence of contractual rigidities, there remains for the agents the problem of inferring prices on the basis of the instruments established by the government.

An announcement on monetary and fiscal measures must be interpreted and converted into expectations of price variations and these, in turn, into decisions on prices and quantities. Each firm is interested not only in the behaviour pattern that it expects the government to adopt but also, and mainly, in what it assumes its suppliers and competitors will do and in how wages will vary. Uncertainty as to these questions does not disappear even though there has been a credible change in policy.⁴⁰ The same

problem confronts the workers. An abrupt change in the inflation rate calls for a synchronized movement in prices as a whole. If each agent does not clearly perceive that the rest will adjust their prices in response to the policy, he will have no incentives to make sufficient changes in those that he controls.⁴¹ In other words, even if there is some confidence that the government will maintain the course announced, there is no guarantee that a sudden change in monetary and fiscal policy will be wholly reflected in prices.⁴² It is probable that the rate of inflation will not fall at the same pace as nominal demand and that the change in relative prices will be erratic. The confusion that this can produce might endanger the continuity of policies. In these conditions inflation may possibly not approach the value that would be appropriate to an equilibrium response.

It seems reasonable that a stabilization programme should try to avoid these risks. An instrument for achieving this is income policy. The intervention of the public sector in price- and wage-fixing is sometimes equivalent to a stabilization policy; other opinions regard it as a source of unjustified distortions. Neither of these two positions seems correct. The function of income policy should be to facilitate the transition to a lower rate of inflation so that prices, taken as a whole, would vary approximately in accordance with global demand. There is no guarantee that market forces by themselves alone will produce this result; nor can a policy create a system of prices by administrative decision. The efficacy of direct measures respecting prices undoubtedly depends to a large extent on the conditions and the way in which they are applied:

i) Income policy is complementary to the regulation of global demand and does not replace it. When controls are applied or price guidelines

⁸The problem of credibility in relation to stabilization policies has been discussed by Schelling (1982) and Koromzay (1982). Recently models have been produced in which the public gradually modifies its appraisal of the future conduct of the government in accordance with the policies actually applied (see, for example, Di Tata (1983), Backus and Driffill (1984)). One of the findings of these models in which expectations depend on the reputation of the authorities is that, even when the latter are disposed to slow down nominal demand unconditionally, there is some likelihood that expectations might not be adjusted immediately: it would not be realized that a change in the policy regime had taken place until a recession occurred.

⁹The credibility of fiscal policy also depends on price expectations. When inflation declines, real tax revenue increases, because the effect of the lag between the moment of payment and the point in time when the tax is imposed diminishes. In other words, the fiscal deficit is partly endogenous (see Olivera, 1967; Dutton, 1971; Tanzi, 1977; Canavese, 1985). The reduction of the fiscal time-lag has been particularly important in hyperinflations. It has even been claimed that in some cases stabilization would bring with it fiscal equilibrium, rather than *vice versa* (League of Nations, 1946, in relation to the Austrian and Hungarian hyperinflations). The interdependence between deficit and inflation, on the other hand, introduces an ambiguous situation: a fiscal policy credible for a public sceptical towards stabilization prospects would imply overadjustment (i.e., would prove highly restrictive) once inflation had effectively slowed down.

⁴⁰Much of the macroeconomic discussion on the role and formation of expectations is based on the contrast between adaptive and rational expectations; that is, between forecasts that depend solely on the past history of the variable and those in which people act as though they knew the process that determines the variable. This dichotomy is fallacious. To assume that individuals are capable of realizing when a change has taken place in the conditions of the economy (and therefore do not mechanically extrapolate the past) does not imply the hypothesis that the results of the said change are accurately assessed or that the agents make uniform predictions on the basis of a given model.

⁴¹Di Tata (1982) and Phelps (1983) have analysed this problem by applying the concept of "expectations of expectations": people have to foresee in what way the rest will make their predictions; if each individual is confident that the rest will modify their expectations in face of a policy change, prices will move towards equilibrium, but if this is not the case, there will be an imbalance.

⁴²Hyperinflations are special cases: in so far as most prices are adjusted in response to a benchmark price (such as the exchange rate) it is sufficient for this price to stabilize for all the rest to follow (Lopes, 1984). The problem of synchronization would not then be so acute as in the case of less rapid inflations.

are announced, the public must be confident that they will be respected. The administrative system may concern itself with specific deviations, but cannot exert full control over transactions.⁴³ Hence the policy's chances of success are dependent on the fact of the programme as a whole being regarded as feasible. To this end, the government must show that it is in a position to prevent immoderate demand at the prices indicated. Experience shows that the spread of black markets or the existence of great discrepancies between regulated and non-regulated prices end in the last resort with the abandonment of attempts at stabilization. To avoid this it is essential that those who have to do with pricing should find that they will not gain very much by eluding the controls: demand should be such as not to create disturbances in supplies or stimulate unofficial price increases. In other words, the information received by market agents should be such as to confirm the possibility of sustaining the price trend implicit in the programme;

ii) For this reason, global demand policy has a central role in the transition towards a regime of lower price increases. Basically, there would need to be harmony between expenditure and prices, so as not to generate great surpluses or insufficiencies of demand. Clearly, however, exact harmony in this respect could not be achieved, not only because of the well-known difficulties in controlling nominal expenditure but also because throughout the transition period there may be uncertainty as to the response of output to a stimulus from demand. At all events, the management of specific instruments will probably vary according to the criterion of those responsible for the policy. In particular, if there has been an appreciable change in the inflation rate, there will be modifications in demand for assets which cannot be accurately foreseen. In such cases, it does not seem desirable to adopt strict targets for the monetary aggregates. In this connection there is still the problem of distinguishing the movements in the interest rate which are attributable to changes in inflation expectations

⁴³In this regard, it would seem that the management of income policies with high inflation rates is extremely complex. These policies would therefore be more viable with low inflation rates.

from those which are due to the state of liquidity;

iii) When prices and wages are regulated the economy is being overdetermined: the resulting state cannot be described as one of equilibrium. Relative prices are not allowed to vary in response to market conditions. This is not unharmed. But the contention that an income policy is undesirable because it produces distortions in prices carries little weight. What is the alternative? In a state of erratic inflation relative prices emerge from a guessing game that bears little resemblance to equilibrium; it is highly probable that price adjustments in the face of a slackening of demand will occur in equally haphazard fashion. In these conditions relative prices determined by the market will not be a useful standard of reference. The stabilization of prices as a whole seems to be a requisite for embarking on the formation of a coherent price system; the initial overdetermination is then a way of accelerating the process which leads to this.

In any case, the constraints imposed by price control on the movements of relative prices can present a problem for anti-inflationary policies if demand for some goods is in great excess or if some groups consider that they are carrying a disproportionate load. It is almost inevitable that some such cases will arise, without necessarily jeopardizing the policy as a whole. It is important, however, that lags should not occur that lead at any time to heavy increases in some nominal prices. This means, on the one hand, that strict control over prices should have a limited duration, until such time as there can be confidence in the incorporation of the lower inflation rate into decisions on prices. On the other hand, it is important that the point of departure for relative prices, especially those of greater macroeconomic significance (real exchange rate, real wages, public sector prices) should be such as to avoid major imbalances. This is a particularly complex aspect, especially when the initial situation makes it difficult to apply historical norms as a frame of reference and when there are sharp conflicts over income distribution. Nonetheless, this fact must be faced: it would once again be Utopian to imagine that the quest for an acceptable set of relative prices will not suffer disturbances in a climate of high inflation.

In any event, at some time or other relative prices must change and this will imply upward movements in some nominal values. It also seems certain that the application of an income policy may create uncertainty as to the possibility of maintaining low inflation rates, especially when there has been previous experience of abrupt price increases when the controls are removed. This underlines the need for a demand policy compatible with the price track chosen, so as to create confidence that the above effect will not be produced. The learning process may also take place in the reverse direction: if for a time the managed prices are maintained without appreciable upsets, expectations will be reinforced: if this happens, the adjustments required in relative prices will not necessarily imply a major upswing in nominal prices as a whole. In addition, it is likely that with an interval of relatively stable prices, the demands made on each individual firm will become more elastic, since, when prices are less volatile, it costs purchasers less to look for what they want. This, if the firms perceive it, may become an incentive for keener competition in respect of prices.

The application of an income policy in conjunction with demand policies is intended to reduce the negative effect of stabilization on activity. It is difficult, however, for disturbances to be avoided entirely. In so far as expectations are not rapidly and completely adjusted, the real interest rate may rise, as frequently happens on the inception of stabilization programmes. Additionally, it is possible, especially when rapid

deflation is the aim, that a period may ensue in which uncertainty as to prices will cause a contraction of supply. Besides, both from the fiscal point of view and from that of relative prices, an anti-inflationary policy is necessarily non-neutral: there will be sectors whose real income is reduced, and, even if others improve their position (especially those that were most affected by the inflation tax), the effects on expenditure may not be totally and immediately offset. At the same time stabilization can bring to light losses which certain individuals or sectors were incurring, but which they did not clearly perceive or which they were hoping to recoup at some time or other. Over a longer term, some activities whose profits were linked with price instability, or which were organized in relation to this, would also have reason to contract.

When starting with high inflation, therefore, the transition to a more stable economy can hardly take place without some distortions. In the conditions facing many Latin American economies, the reduction of inflation is particularly difficult because of the burden of external debt weighing upon real income and the budget. Moreover, an economy with high inflation cannot function with a reasonable degree of co-ordination. Without some price stability there is little room for policies aiming at the growth and orderly redistribution of income. Basically, stabilization would be an attempt to enable such policies to be implemented; in the longer run, stabilization depends on them for its preservation.

IV

A stabilization policy based on shock: The case of the Plan Austral

The preceding sections were focused on inflation from an analytical standpoint. Although in dealing with this subject it is impossible not to refer, albeit implicitly, to actual situations (and the foregoing exposition was perhaps influenced

by the Argentinian experience), the discussion was kept on a general plane. The present section has a different purpose in view: namely, to comment on a specific stabilization programme with its own particular features. The interest of

the *Plan Austral* applied in Argentina derives, on the one hand, from the magnitude of the inflation which gave rise to the programme (around 1 % per day) and, on the other, from the set of instruments used to curb it to an abrupt halt. Our intention here is to describe the conditions that carried inflation to extremely high levels, to comment on the content of the programme and to mention some of its initial effects.⁴⁴

Argentina has a long tradition of inflation. It is not that there have been no efforts at stabilization. Indeed, since the 1950s a variety of policies for moderating inflation have been put into effect. These experiments were of different types, according to the characteristics of the governments that tried them out and also in relation to the theories in vogue on each occasion. The programmes included restrictions on demand of the conventional type (in 1959 and during a brief episode in 1977/1978), income policies (in the form of a generalized freeze in 1952 and 1973; freezing of wages and pegging of the exchange rate with a voluntary price agreement in 1967; a brief truce on prices in 1977) and, more recently, in 1978-1981, a "crawling-peg" policy (based on pre-announcement of the exchange rate with a decreasing devaluation). These programmes, however, had no lasting effects, although in some cases there were temporary (sometimes marked) decreases in the rate of inflation.

The recurrence of experiments in stabilization, the breakdown of policies and new attempts, have had various consequences. To begin with, the repetition of the sequence implied serious instability in policies. This volatility, besides, has been incorporated into expectations; in Argentina, there is less public confidence in policies than in countries with a less turbulent economic history, all the more so since the previous programmes have already tried out a wide variety of potential stabilization instruments. Nevertheless, the costs of inflation are widely recognized. Hence there is a pressing

demand for stabilization and at the same time great obstacles in the way of its achievement.

The inflation rate in Argentina has been exceptionally high in recent years, even in relation to the country's customary levels. Since 1974 the velocity of price increases has never been less than 100% annually in any year (with a brief exception in 1980); in the last five-year period, there has been a persistent acceleration, culminating in inflation rates in the order of 30% per month or even higher by mid-1985. This rapid upswing was associated with the profound crisis which derived from the failure of the economic liberalization programme and the pre-announced exchange rate.

Towards the end of 1980 the real exchange rate was abnormally low; although the rise in domestic prices was less rapid it was far from approaching parity in purchasing power. At the same time, the external debt had increased appreciably. The public sector in particular had contracted heavy debts in foreign exchange, which financed the current account deficit and a rapid outflow of private capital (although part of the private sector had also increased its indebtedness). The activity of the sectors producing tradeable goods had already begun to diminish, mainly owing to competition from imported goods. The domestic financial system, which had greatly expanded in the preceding years, was experiencing serious difficulties because of the irregular recovery of credits. Furthermore, it was predictable that social tensions would become more acute, despite the fact that real wages had partly recovered after the sharp fall recorded in 1976-1978.

The state of the economy involved a very marked inflationary potential. Devaluation, which was inevitable in view of the balance-of-payments situation, was bound to be reflected in domestic prices, not only because of its direct impact, but also through the secondary repercussions typical of an economy adjusted to inflation. An increase in the real exchange rate, on the other hand, would have a direct effect on public finances (by raising the real value of debt services) and would also generate pressures for subsidized transfer of the private debt to the public sector. At the same time, the high level of domestic indebtedness was creating demands for a reduction in the financial burdens of

⁴⁴The description given here of the economic evolution of Argentina in recent years and in the initial months of the application of the programme is qualitative and very brief. More detailed descriptions can be found in ECXAC (1980 to 1984) and in one of the essays contained in ECLAC (1986).

enterprises, either through subsidies or through increased inflation.

In this way, successive spurts of inflation were produced as government measures went on being adjusted, in a climate of great political and economic instability, to the accumulating pressures. In the course of 1981 the exchange rate rose five times, without any appreciable improvement in the external payments situation: there was no halt in the fall of reserves and the debt, especially that of the public sector continued to rocket. At the end of the Falkland Islands conflict, midway through 1982, it was decided to introduce a new and heavy devaluation and a reform in the financial system aimed at improving the debtors' situation. Among the chief measures of this reform was the decision to extend the deadlines for the repayment of bank credits and the Central Bank took over the fixing of the interest rate in the most important segment of loans and deposits. As this rate was far below anticipated inflation, there was an abrupt fall in demand for liquid assets, which had repercussions on the goods markets. This produced a "watering-down" of debts (which continued in the following years), at the cost of a new increase in the rate of inflation.

Throughout this period several events combined to augment the fiscal deficit. In the first place, the servicing of the public external debt shot up (from less than 1% of the GDP in 1980 to over 6% in 1982), not only as a result of the increased indebtedness of the government itself and the high interest rates, but also because the public sector was gradually assuming responsibility for the private debt. Although the measures adopted in 1982 included the redeeming of domestic government securities in the hands of the public (particularly Treasury bills and adjustable bonds), the financial reform led to a significant increase in interest-bearing bank reserves, which created large cash deficits for the Central Bank (or "quasi-fiscal deficits", as they were generally called in Argentina). Moreover, the drop in activity (which reached its lowest ebb in mid-1982) and the rapid price increases themselves reduced tax revenue; the decline amounted to over 5% of the GDP in two years. In other words, both the absorption by the government of potential capital losses in the

private sector and the burden of external interest payments plus the existing recessive and inflationary conditions combined to debilitate the public finances. In this situation the authorities had progressively increasing recourse to Central Bank credit. At the same time demand for money was appreciably declining. Thus the need for inflation tax revenue was growing, while the tax base was contracting.

In 1983 inflation soared still higher, until it reached an average of 17% per month in the last quarter. This was a confused process, influenced by the joint effect of an extremely large fiscal deficit (public sector financing by the Central Bank and the variation in short-term liabilities exceeded 17% of the GDP), heavy wage pressures and the government's attempt to maintain the real value of the exchange rate and of public service charges. This period saw an intensification of the instability of economic policy. The military government was now seriously weakened, and the chief aim of its economic management was to absorb the different pressures until the time of the elections fixed for the month of October. Thus, in a climate of great turbulence, the constitutional authorities took over the government at the end of 1983.

At that time there was a variety of demands requiring attention. Following the external crisis of 1980 (aggravated by the burden of interest on the debt, the interruption of credit flows and the fall in export prices) the economy had carried out a radical adjustment, although with special characteristics. Between 1980 and 1983 imports of goods shrank to less than half, so that an appreciable surplus was generated on the trade balance. This adjustment affected domestic production, although as from 1982 there had been a marked revival of import substitution, which contributed to the recovery of industrial output after a slump. From the standpoint of expenditure, the most significant event was the sharp drop in investment: not only was financing scarce, but also the investment spirit was depressed. The flight of capital in the early 1980s had apparently reflected not only a short-term speculation movement, but a widespread lack of confidence in the future of the economy. This, coupled with the magnitude and urgency of

debt commitments, severely restricted growth. In addition, there were pronounced social tensions: practically all groups were claiming improvements in their income. At the same time, inflation had soared, and its costs were manifest, but it was equally clear that it would be difficult to control the fiscal deficit and moderate the distribution struggle which was finding expression through the price system.

Initially, the government attempted to reconcile an increase in output and in real wages with a gradual slackening of inflation, while negotiations with the external creditors were attempted. A policy of reduction of the fiscal deficit was announced, based on the contraction of expenditure on defence and security and greater efficiency in tax administration. At the outset, however, anti-inflationary policy consisted mainly of the establishment of monthly guidelines for the main prices (exchange rate, wages, public service charges, industrial prices, regulated interest rate), in an attempt to influence costs and expectations. This policy turned out to be ineffectual: inflation overstepped the guidelines set, with the result that there was a maladjustment between the prices regulated by the authorities and those that were not controlled.

Throughout the year the authorities showed increasing concern for the control of global demand. This was reflected in a reduction in the government's current expenditure on non-personal goods and services and in a fall in public investment, although, as counterpart, the hoped-for increase in tax revenue did not materialize. There was also a change in price and wage policy: whereas the wage guidelines (whose application was limited more and more to the public sector) became more restrictive, the government tried to restore the real value of the exchange rate and the prices of public services. Towards the end of 1984, moreover, after the signing of a stand-by credit agreement with the IMF, there was a hardening of monetary policy.

In short, output and real wages increased in 1984, and at the same time a significant surplus was achieved in foreign trade, while progress was made in external negotiations. Nevertheless, towards the end of the period there were visible signs of an interruption in real expansion. Additionally, the rate at which prices

rose showed no tendency to decrease. Inflation rates remained in the region of 20% per month and most of the public probably expected an acceleration to even higher rates.

The policy of gradual adjustment applied in 1984 did not succeed in producing a simultaneous slowdown in costs, global demand and expectations in such a way as to have a definite effect on prices. Although the intention was to curb price increases, no change had been produced in the inflationary régime. Income and demand policies, acting separately and with differing intensity according to the point in time, had not shown themselves effective in guiding prices. Price resistance was accentuated by the apparent reversibility of the policies and by the generalized (although imperfect) indexation. Both through its impact on public finances (owing to the fiscal lag and the operational losses of the Central Bank) and through the price and wage adjustment mechanisms to which it conduced, inflation tended to persist or gather speed, especially when rises occurred in basic relative prices: meat, the exchange rate, public service charges. This in turn stepped up the probable costs of the anti-inflationary measures and detracted from their credibility; the situation thus assumed the characteristics of a sort of vicious circle. Moreover, the effects of the extremely high inflation were patent: there was an obvious spread of speculative behaviour associated with price volatility. Hence an effort at stabilization became a matter of urgency.

The experience of high inflation produced considerable changes in wage- and price-setting procedures and in debt contracts. These were particularly evident in the shortening of the periods between decisions. In recent years, public service charges and wages were adjusted every month.⁴⁵ Wage indexation based on the price increases of the previous month was

⁴⁵Frenkel (1984 a) found evidence that wage increases were applied quarterly up to 1982. With the upsurge of inflation the adjustment period was reduced to a month. It should be noted, however, that the payment period for wages and salaries (monthly for employees, almost invariably fortnightly for manual workers) remained in general unchanged in relation to what it had been in periods when inflation was much lower. As wage-earners in general had probably little access to the use of money substitutes, this situation tended to maintain demand for money. It may be conjectured that, if inflation had continued at rates in the region of 1% per day, payment practices would have been modified, which would have still further accentuated the rejection of money.

probably a current practice; it is difficult, however, to be precise about how widely and how systematically this rule was applied. Little is known about price formation in the private sector, apart from the fact that, towards the middle of 1985, increases were taking place several times a month. Probably decisions on prices stemmed from complex and somewhat irregular process which, besides the transfer (more or less automatic) of current costs, were also influenced by the conjectures that each firm formed as to the future evolution of the prices of its inputs and its demand. Prices reflected the headlong course of inflationary instability. In contrast to what occurred in the European hyperinflations, no generally accepted referent (such as the value of foreign exchange) had been established for pricing purposes. All this implied that, although price and wage adjustments had tended to synchronize, the factors of inflationary inertia had not entirely disappeared; nor was it possible to identify a single basic variable capable of guiding the price system in such a way as to break the inflationary trend.

The credit markets also concentrated on very short-term operations. In general financial operations were carried out with payment terms of only a few days and at interest rates that reflected average expectations of the variation in prices. For contracts of a certain duration (such as leases), different indexation clauses were used. Apparently the practice of monthly adjustments had become general, price indexes for the preceding month being applied. In other words, in most credit contracts, price fluctuations were rapidly, but not immediately, incorporated.

These conditions were propitious for abrupt deflation, since there were no major lags in prices adjustments and in contracts. Nonetheless, in order to achieve a marked fall in the inflation rate a system had to be defined to tackle the elements of inertia that were still present and thus to bring about a very rapid change in the behaviour of the public, as well as to influence public finance.

At some point early in 1985, the government would seem to have begun to consider a shock stabilization policy. One of the main features of this programme was an attempt at the simultaneous control of all the potential

elements of inflation. From this standpoint, the stabilization plan was consistent with a variety of hypotheses on the sources of price increases and, according to many of these hypotheses, some of its instruments would prove redundant. In this way, the government was probably attempting to diminish the risks of not attaining a definite result, which would have saddled it with very heavy costs.

The authorities' analysis, expressed in the speeches that accompanied the announcement of the programme in June 1985, was based on the experience of earlier attempts at stabilization. The government discarded the possibility of a new attempt at gradual deflation, since it deemed the prolonged maintenance of inflation rates of the current magnitude unacceptable. It also rejected the unilateral employment of price and wage policies: if these were not harmonized with global demand, the result would sooner or later be chaos in the price system. According to this same analysis, therefore, there had to be a visible change in fiscal and monetary policy, not only to ensure that global demand would be adjusted to much less rapid changes in prices, but also to guide the expectations of an important group of the public. This last objective made it desirable for the government to explicitly announce that there would be a modification in the handling of policies. But it was also thought that the announcement would not suffice: if the inertia of prices were not overcome and if it were not clearly shown that these would effectively cease to rise, there was a risk of a feeble initial response which would jeopardize the fulfilment of the fiscal and the monetary announcements (given that the fiscal lag would continue in operation), and the recession would be intensified. To income policy was assigned the role of calling an abrupt and simultaneous halt to the growth of costs and prices in a manner sufficiently definite for it to be incorporated into expectations. Finally, in view of the proposal to cut inflation short, it was necessary to foresee the possible redistributions that would occur with the sudden transformation of high nominal interest rates on operations already agreed upon into equally high rates, or with the use of indexations based on former inflation for the adjustment of payments after the brake had been applied to prices. The programme included a

system of debt conversion (from the old currency to a new one) which, in effect, functioned by translating into terms of nominal values, decreasing over time, the deterioration in the purchasing power of future payments that would have resulted from a rise in prices such as had been taking place before the programme. This mechanism sought to neutralize the effect of the sudden change in the price trend on payment commitments previously contracted.

In the months before the announcement of the programme, the government devoted special attention to improving the fiscal situation and increasing the real values of public service charges and the exchange rate. There was also a rapid liberalization of industrial prices, and stimulus was given to the recovery of the price of beef cattle, which had lagged appreciably behind. These policies, which aimed at establishing sustainable values for the main relative prices, implied an acceleration of the growth of prices and also had repercussions on activity and real wages (especially in the public sector). Since there were few signs of an imminent stabilization programme, inflationary expectations probably soared in a climate of acute tension. This became critical in the fortnight of June, when an unexpected rise occurred in the price of fuels, a devaluation was announced (with mainly fiscal aims, since it was combined with new foreign trade taxes) and rumours (often inaccurate) circulated on the content of the plan.

The programme was promulgated on 14 June, in a manner which clearly conveyed that the government had adopted it as an "all or nothing" option. A sharp reduction was announced for the fiscal deficit forecast for the second half of the year;⁴⁶ this would enable the Treasury to cease asking for Central Bank credits. In other words, there was a suspension of government financing through money issues;⁴⁷

⁴⁶Perhaps the magnitude of the fiscal adjustment envisaged in the programme can be better appreciated if it is borne in mind that, discounting interest payments on the external debt, the projection implied an excess of income over expenditure.

⁴⁷Before the announcement, the Central Bank had granted large amounts of credit to the government, which were used to form a financial buffer, assigned in part to the payment of the June half-bonus in the Civil Service. The use of an initial money issue to finance a temporary imbalance in the government accounts was a general practice in the programmes combating the hyperinflations of the 1920s.

this commitment was to be of indefinite duration. At the same time it was decided to institute a general freeze of prices, wages, the exchange rate and public service charges. Prices would be frozen at their 12 June values (which implied that the numerous price increases applied in the days just before the announcement would not be confirmed); wages would be fixed after the increase in remunerations for the month of May which was due under the indexation rule previously applied. The freezing would be temporary, but its duration was not fixed. The interest rate on deposits in the regulated segment was established at 4% per month; i.e., at a much higher value than the inflation rate implicit in the freeze, but much lower than the rate of 28% per month previously in force. Lastly, the creation of a new monetary unit (the austral) was announced: money in circulation and demand deposits would be automatically converted in the proportion of one austral per thousand pesos; debts fixed in pesos (or adjustable according to indexes which reflected the inflation in pesos prior to the reform) would be paid according to the application of a conversion scale which implied a daily depreciation of the peso in relation to the austral.

The features of the stabilization programme required an abrupt change in the attitude of the public. Actually, although the initial reaction of the principal social groups was one of caution, or opposition, there was a notable turnaround in the expectations of the public in general. It is difficult to distinguish the part played in this by the specific announcements (such as the monetary-fiscal commitment or the freeze) but it was undoubtedly influenced by the fact that the programme showed a clear determination on the part of the authorities to use their instruments to bring down inflation; the reaction of the public revealed that there was a strong desire for stability. This does not mean that expectations were immediately adjusted to a zero increase in prices, but it does show that a spell of marking time was introduced during which the possibility of a hyperinflationary explosion could be discounted. For the moment, this attitude showed itself in a keen price hunt on the part of consumers, in a widespread renewal of bank deposits at much lower interest rates than some

days earlier, and in a fall in the parallel exchange rate.

At the outset the application of the price freeze ran into certain difficulties: for some weeks there was uncertainty as to the prices of many products. This had a disturbing effect on transactions and (together with the contraction of consumer demand) was probably one of the causes of the sharp fall in activity during the months of June and July. Following this, a very marked attenuation was observed in price increases, and the markets, with certain exceptions, functioned normally. The wholesale price index rose by less than 1% per month between July and November. Consumer prices varied more rapidly (around 2.5% per month on average, eliminating the after-effect of the substantial increases in the first part of June on the indexes of the following months), owing to the rise in the prices of services and of some primary commodities. In point of fact, there seems to have been a certain slide in prices (and in wages); at all events, the downturn in inflation was abrupt and well-defined.

The reduction in the fiscal deficit was due to several causes. In the first place, in the months before the programme there was a marked upswing in the real value of public service charges. Moreover, the fall in the inflation rate itself eliminated much of the effect of the fiscal lag, so that there was a notable increase in tax revenue. The cash income of the government also increased, thanks to the larger taxes on foreign trade and the application of a forced loan (linked with the 1984 taxable income and net wealth). Secondly, public-sector wages and salaries remained lower than in the previous year, and investment expenditure was reduced. As a result, the central government Treasury achieved an approximate balance between outgoings and income and was able to abstain from requesting Central Bank credits. The adjustment was less marked in the provinces and in the State enterprises. Thus the fall in the public-sector deficit as a whole, although striking, was apparently somewhat lower than had been predicted.

The creation of money slowed down markedly in the last part of 1985, although much less than prices. Monetary expansion was fed by the accumulation of reserves (owing to the

surplus on the trade balance and the inflow of capital, encouraged by the great difference between the domestic interest rate and the zero variation in the exchange rate), the rediscunts to the financial system and Central Bank payments on the reserves; creation of money via these sources was partly sterilized (at a high cost for the Central Bank) through increases in cash requirements. There were significant changes in the portfolios of financial assets: demand for means of payment and interest-earning deposits increased, alongside a reduction in deposits adjustable in accordance with price indexes, while the parallel exchange rate (with some fluctuations) maintained a stable trend. This was apparently a reflection of the brusque change in inflationary expectations. Non-regulated interest rates, however, varied above 5% a month; this suggests that, after some months, considerable inflationary expectations persisted.⁴⁸

Once the initial maladjustment was over, there was a certain recovery in global demand. Although the level of activity towards the end of 1985 remained far below previous maximum levels, an increase in production was observable in relation to the meagre figures recorded in June and July of that year, and stocks were relatively normal. Thus the decline in the number of hours worked and in employment was halted. With regard to real wages, a comparison between periods with very different price increase rates is difficult, since in conditions of high inflation the purchasing power of a given nominal income is critically dependent on the point in time when it is received and on the time profile of its expenditure. In general terms, real remunerations seem to have declined slightly since the beginning of the programme; at the end of 1985 they were below the values corresponding to the previous year (especially in the public sector), although they exceeded the minimum levels recorded at the beginning of the decade.

⁴⁸Of course the level of the interest rate may have had other causes: one of the problems posed by the state of the economy was to identify how far the *ex ante* real interest rates were as high as appeared from the comparison of the nominal rates with the effective rise in prices. Moreover, the high costs of financial intermediation implied very wide margins between the rates on deposits and on loans, and thus increased the price of credit,

It would be premature to attempt a precise appraisal of the results of the programme.⁴⁹ Nevertheless, it evidently produced an appreciable fall in the rate of inflation, at a relatively low cost in terms of production losses in the wake of the abrupt change. Moreover, some months after the announcement of the programme, signs were observable—still incipient (because uncertainty has not disappeared), but significant—of a modification in economic behaviour: consumers could take advantage of the greater facility of comparing prices, there was a certain increase in consumer credit and, apparently, firms were devoting more attention to the calculation of their costs. Generally speaking, the time horizon for decisions seemed to have extended beyond the few weeks that represented the foreseeable future during the period of great inflation.

Some questions naturally remain unanswered: to what extent will the low inflation rates be sustainable, and what can be expected of the performance of the economy in the new conditions? The aim of the stabilization programme was to control a situation of emergency. As such, it had some components that were of a temporary character. The freezing of prices and wages was useful in cutting short the inertia of prices and giving a frame of reference to expectations. As the memory of inflation could not be blotted out in a few months, it will probably still be necessary to give income-policy guidelines for the orientation of price formation. At the same time, a prolonged freeze (even as it was used, without rigid application) inhibits the movements of relative prices and, in the light of the country's previous experience, may also create unfavourable expectations. Hence it would seem necessary to define rules for income policy which will allow the time horizon of the programme to be extended without the rigidity of a freeze. It is probable that upon this may partly depend the reduction of interest rates, which still remained very high towards the end of 1985. Similarly, it appears important that the government should be able to demonstrate its capacity to maintain, on a more permanent basis, a smaller fiscal deficit.

⁴⁹This document was completed in December 1985.

Both from the fiscal point of view and from the price and wages angle questions of distribution arise. The incipient stabilization has enabled the economy to develop in a more rational manner: even so, this in itself does not imply that the crisis has been overcome. Predictably, an economy that had reached the brink of hyperinflation will find recovery difficult. In Argentina's present circumstances, it is to be expected that there will still be heavy unsatisfied demands for higher wages, bigger profit margins and transfers through the budget. The stabilization programme involved a radical change in the way in which economic decisions are made: the government took the initiative in formalizing its announcements, a proceeding which was implicitly accepted by the other actors. This may have been due to the seriousness of the state of the economy and probably also to the government's effort to distribute the costs (and the benefits) of stabilization. Indubitably, however, some sectors have suffered losses. In the long run, the social groups will not abandon their claims: the problem still lies in achieving a smooth evolution of the distribution struggle, without successive sectoral thrusts that generate inflation. In this connection, the threat of a return to high inflation may serve to moderate the conflict, if this takes place in a framework in which the actors clearly perceive the limits imposed on the improvement of their incomes by the conditions of the economy and the resistance of the rest. At the same time, a state of stagnation fosters the distribution conflict: there will be fewer obstacles to the achievement of stabilization, the more clearly it is recognized that a trend towards growth can be regained.

Much depends, of course, on the behaviour of the domestic agents, both public and private. But the economy is also subject to a pronounced external constraint. Payments on the debt (combined at present with an abrupt deterioration of the terms of trade) impose severe pressure on public sector finances and reduce national income; both these elements hamper stabilization. Although the anti-inflationary programme was the offspring of the costs that price instability imposed on the domestic economy, one of its consequences has been an improvement in external bargaining

capacity. Nonetheless, the problem posed by the debt continues to be extremely complex and to some extent transcends the sphere of negotiation between the country and its

creditors. Aside from the domestic effort, the prospects of growth and stability basically depend on the conditions that are ultimately established within this sphere.

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