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Introduction

By

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All papers of this issue deal with different aspects of "the economic crisis of the 1970s." The first two papers are concerned with the question why inflation, unemployment and balance of payments problems have been so persistent and so widespread. They are followed by a case study that analyzes the transmission of international economic disturbances to Australia in the 1970s and provides a critical assessment of the policies pursued to cope with them. The last three papers are concerned with policy issues. There are two papers on the central problem of stabilization policy in the economic environment of the 1970s: *given* a high rate of inflation, how to bring it down without excessive cost in terms of underutilization of productive resources? The last paper of the issue takes up the question why it is important to reduce the rate of inflation, and presents a comprehensive assessment of the economic and non-economic costs of inflation.

In the first article, Stanley Black provides an analytic account of the behaviour of the world economy in the 1970s with emphasis on the experience of the eight major industrial countries. As he sees it, the instability of market economies in the 1970s can be explained in terms of the dynamic response of markets and government policies to two major disturbances that occurred in the early 1970s: the collapse of the Bretton Woods system and the associated expansion of international liquidity on the one hand; and the sharp increase in the price of oil on the other hand. In his interpretation government policies and market responses magnified the effects of these disturbances.

The inflow of reserves due to the balance of payments deficit of the United States prior to the start of generalized floating in March 1973 led, in Blacks view, to "strongly expansionary ... monetary growth" in the surplus countries because "the economic situation in 1971 and 1972 called for expansionary monetary and fiscal policies." In contrast it had no effect on the supply of money in the United States because of the asymmetry of the international monetary system under the dollar standard. Thus the collapse of the Bretton Woods system caused a substantial increase in international liquidity and in the total supply of money in the world economy. Aided by expansionary fiscal policies pursued in most countries at the same time, this led to the worldwide boom of 1972—73 and to the high rates of inflation that characterized it. Black notes that the inflationary impact of the liquidity increase was magnified by the exceptionally strong boom in international commodity markets in 1973—74, partly due to the simultaneous occurrence of several supply disturbances.

Monetary and fiscal policies turned restrictive in most countries in 1973—74 in an attempt to restrain the inflationary boom of 1973. Just as deflationary policies were beginning to have effect, "the oil crises struck a blow" at all countries and thrust them into recession and external deficit. Black points out that the world economy was able to adjust to the surplus of the OPEC countries without excessive contraction in the economies of industrial countries and without competitive depreciation or import restrictions. The international financial system was able to recycle the surplus funds of oil producers back to oil consumers — and in the process created international reserves in the amount of SDR 67 billion from 1974 to 1976 compared to SDR 68 billion in the years 1970—1972. As Black sees it, "liability settlement through the creation of reserves has become available to non-reserve currency countries as well, through the facilities of the IMF and the international banking system."

Nevertheless, the oil price increase exerted a deflationary impact, reinforced by shifts in relative prices that resulted in "structural unemployment" because of wage and price rigidities in contracting industries.

From 1974 the problem of stabilization policy in most countries has been one of reconciling the conflicting objectives — at least in the short run — of reducing inflation *and* reducing unemployment. In this respect the system of floating exchange rates has, in Black's view, enabled the world to divide itself between two groups of countries: "strong economies," such as West Germany and Japan, with current account surpluses, appreciating currencies and low inflation on the one hand; and "weak economies," such as Italy and the United Kingdom, with depreciating currencies and high inflation on the other. Weak economies cannot pursue more expansionary policies than strong economies because of the resulting

currency depreciation and acceleration of inflation. On the other hand there is, in Black's view, "no.. carrot capable of encouraging the stronger economies to act out of regard for their weaker trading partners." Thus, in an inflationary environment the system of floating exchange rates exerts a deflationary bias on the world economy. It is therefore necessary, in Black's view, to co-ordinate macroeconomic policies in such a way that less burden of adjustment falls on the exchange rate mechanism.

In the second paper Bert Hickman and Stefan Schleicher present and interpret evidence from Project LINK concerning international transmission of economic fluctuations and inflation. Their main conclusion from this evidence is somewhat surprising and on the face of it at variance with generally held views on the extent of integration of the world economy: the transmission effects of disturbances originating even in large countries are so small that it is unlikely that they can cause worldwide synchronous economic movements. Instead, worldwide economic fluctuations stem from common disturbances or from the synchronization of economic policies. The Korean war and the Suez crisis are two examples of "common disturbances" in the 1950s, associated with the recessions of 1952 and 1958 respectively. As regards the 1970s the interpretation of Hickman and Schleicher agrees with that of Stanley Black: there were at least two common disturbances, namely the collapse of the Bretton Woods system and the oil crisis; and in addition there was — partly unintended — synchronization of expansionary policies in 1971—72 and of deflationary policies in 1973—74.

The evidence presented by Hickman and Schleicher is not consistent with interpretations of the behaviour of the world economy that rely on the operation of a "strong international multiplier." Neither is it consistent as regards explanation of world inflation — with "global monetarist" theories that assume extensive integration of national markets for goods and services. Indeed, in the extreme, these theories assume a perfectly integrated world market in internationally traded goods that forces equality of national inflation rates as long as fixed exchange rates are maintained. In Hickman's and Schleicher's view of the world there are few "global markets" beyond the obvious examples of markets in homogeneous primary commodities. Thus the explanation of *worldwide* acceleration of inflation in the late 1960s and early 1970s is the synchronization of expansionary policies and other influences on *national* inflation rates rather than the strength of market forces that equalize inflation rates across countries.

To provide further evidence for their conclusion Hickman and Schleicher study the behaviour of several economic time series for sixteen industrial countries over the last 25 years. They identify $5^1/_2$ international

growth cycles in industrial production in the period 1950—1975; only in 1975 was the average growth rate negative although it approached zero in 1952 and 1958. They measure the extent of synchronization of national business cycles using the statistical tool of the so-called diffusion indexes, introduced to business cycle analyses by A. Burns and G. H. Moore in the 1940s. The simplest diffusion index used by Hickman and Schleicher is equal to the difference between the proportion of increasing time series on the one hand, and the proportion of decreasing time series on the other.

Thus it is equal to one when all series are increasing, and to minus one when all series are decreasing. Computed from *changes* in the rate of growth of industrial production for industrial countries, this diffusion index exceeded 0.50 in absolute value in only 13 out of 26 years, which means that "only half the time were more than 75 percent of the countries experiencing common increases or decreases in the rate of growth during 1951—1956." High absolute values of the diffusion index occurred in 1951—53, 1958—61 and 1974—76. These were periods of wide synchronization of economic activity because of, in Hickman's and Schleicher's interpretation, worldwide disturbances and synchronization of policies in these years. Apart from these episodes the interesting aspect of the world economy in the post-war period is the *lack of synchronization* of national cyclical fluctuations and the resulting stability of growth of output in the aggregate.

In recent years advocates of the monetary approach to the balance of payments have emphasized the balance of payments — money supply linkage as — to use Hickman's and Schleicher's terminology — a synchronizing force. Following some earlier studies Hickman and Schleicher present econometric results which suggest that in the Bretton Woods system the "specie-flow mechanism" was considerably weakened by effective sterilization policies — a result consistent with the absence of strong synchronization except in the few periods referred to earlier.

In summary, Hickman and Schleicher draw on a broad range of evidence and statistical analysis in presenting an interpretation of fluctuations in the world economy that questions the validity of many generally held views. One of the main policy conclusions from their analysis is that policy co-ordination may not be desirable *as a rule* because "international growth is steadier when individual growth cycles are largely unsynchronized."

Macroeconomic problems of small open economies have been the subject of much theoretical research in recent years. Michael Porter draws on some of this research in his analysis of the transmission of international economic disturbances to Australia in the 1970s. Australia is an interesting case as a major exporter of minerals and agricultural

products, and as a country that is almost self-sufficient in energy. Thus, unlike many other "small" countries, Australia benefitted from the increase in the relative price of raw materials from the late 1960s. There were also discoveries of major new deposits of coal, iron ore and other minerals in the 1960s. Somewhat paradoxically, Porter traces many of Australia's economic difficulties in the 1970s to these favourable developments — or rather the failure of policy, particularly exchange rate policy, to ensure a smooth and noninflationary adjustment to them.

In Porter's view the boom in the minerals sector, the associated inflow of foreign direct investment, and the swing to a strong surplus in the balance of payments in 1970—72, set off an inflationary adjustment process. The key transmission mechanism in his analysis is the connection between the balance of payments and the supply of money. Referring to some of his earlier studies he concludes that despite "heroic attempts" at sterilization, and indeed despite attempts to discourage capital inflow in the first place, the balance of payments surpluses of 1970—72 led to "explosive monetary buildup." This monetary expansion set off "Humean adjustment" to the surplus through domestic inflation.

Porter argues that this adjustment went *too far* and thus eventually led to a deficit in the balance of payments and an *overvaluation* of the Australian dollar. The failure to *revalue* earlier thus caused the need to *devalue* later (in 1974) with "a certain inevitability" — unless "the Australian community was strong enough to live through... deflationary pressures."

Porter's "overshooting hypothesis" strengthens his central policy conclusion that the best way to adjust to a surplus in the balance of payments in a situation of full employment is to let the domestic currency appreciate from the moment balance of payments pressures begin to emerge. This important lesson can, of course, be also learned from the experiences of other countries — such as Germany and Japan from the 1960s or Finland and Sweden in the early 1970s.

In his analysis of Australia's unemployment problem from 1975 Porter emphasizes "structural" factors rather than insufficiency of aggregate demand. As he sees it the sharp rise of unemployment from 1975 was the result of a sharp increase of wage costs in manufacturing in relation to prices received by producers. The explosion of wages was in part attributable to the inflationary boom set off by the expansion of the minerals sector and in part to substantial increases of minimum wages — by 36 per cent for adult males in 1974. At the same time the government effectively reduced producer prices by a 25 per cent cut of tariffs in 1973. The combined effect of wage increases and tariff cuts was an increase in unemployment, squeeze on profits and slowdown of investment and

growth in the manufacturing sector. Because the minerals sector is much more capital intensive than the manufacturing sector solution to the unemployment problem cannot rely on the growth of that sector but requires, in Porter's view, a reduction of real wages in manufacturing.

In summary, Porter argues that the inflationary boom of the earlier 1970s is a major cause of Australia's inflation *and* unemployment problem in the second half of the 1970s. These problems are magnified by structural changes called for by shifts in comparative advantage between mineral-intensive and labour-intensive sectors of the Australian economy. Porter's interpretation of the Australian experience brings out the need for dynamic and structural analysis of macroeconomic problems of open economies. Static, aggregative models do not provide a correct diagnosis of problems, nor do they suggest appropriate cures for them.

The central problem of stabilization policy in the inflationary environment of the 1970s has been, and continues to be for most industrial countries, how to reduce inflation *and* unemployment simultaneously. In the fourth article of this issue Franco Modigliani and Lucas Papademos develop a "rational approach to the problem of selecting the most desirable (or the least undesirable) feasible path of unemployment and inflation on the road back to full employment and price stability." The authors take it for granted that stabilization policy can control nominal aggregate demand and that, in turn, changes in nominal aggregate demand affect both output and prices. Thus, in their view, high unemployment has persisted in market economies for so long not because it could not have been reduced but rather because it has been tolerated by those responsible for policy as "the necessary price for winding up the received inflation and insuring against the risk of rekindling it."

Modigliani and Papademos develop their model of optimum stabilization policy around a dynamic Phillips curve relationship between the rate of inflation and the rate of unemployment, limiting their analysis to the closed economy. In recent years the so-called rational expectations school has questioned the validity of this approach to inflation and unemployment. According to this school there is no "policy exploitable" trade off between inflation and unemployment even in the short run; only unanticipated "surprises" in policy can affect unemployment. The best way to solve the problem of unemployment is, according to this analysis, to let the markets take care of it; while the *only* way to reduce inflation is to reduce the rate of growth of the supply of money. Modigliani and Papademos reject this view. They emphasize that even if one accepts that the long-run Phillips curve is vertical — once the economy has fully adjusted to all disturbances and the unemployment rate has settled at the Friedman-Phelps natural rate — the weight of theoretical arguments

is against the proposition that there is no trade off in the relevant time horizon of stabilization policy.

Operationally, they postulate that the rate of inflation in the current period is a function of current and past rates of unemployment and of past rates of inflation. This is the *dynamic constraint* of stabilization policy. The *objective* of stabilization policy is to minimize the total cost of reaching the long-run target rate of inflation. Modigliani and Papademos take the long-run target rate of inflation as given by other considerations. If the long-run Phillips curve is non-vertical the long-run inflation target also implies, of course, a long-run target for the rate of unemployment. If, on the other hand, there is no long-run trade off, the long-run unemployment rate is not subject to choice but has to equal the natural rate. The total cost of a given time path of inflation and unemployment is postulated to be the weighted sum of the absolute values of deviations of unemployment and inflation from their long-run target values. The paper provides a detailed justification of this form of the cost function. Once this specification is accepted, the role of "value judgments" is in determining the ratio of weights given to deviations of unemployment and inflation from their target values on the one hand; and in determining the extent to which future costs are discounted on the other. Modigliani and Papademos take the view — advocated by Koopmans — that rather than rigidly adhering to a given "value judgment" one should evaluate the consequences of different value judgments and in the light of information on these consequences be ready to revise one's normative standards.

The nature of the optimal stabilization path depends on whether the long-run Phillips curve is taken to be vertical or downward sloping. In the latter case the optimum policy is surprisingly simple: it ought to aim at a "turnpike" with the rate of unemployment equal to, or above, the long-run target rate for much of the time while the rate of inflation gradually converges to its long-run target value. How much unemployment ought to be tolerated depends on the slope of the Phillips curve on the one hand, and the relative weight attached to the cost of unemployment on the other.

The turnpike property does not hold if the long-run Phillips curve is vertical unless, it turns out, future costs are discounted. If they are not discounted the optimal policy implies steadily declining inflation and unemployment from an initial level of unemployment high enough to ensure a deceleration of inflation. If future costs are discounted the nature of the optimal path is qualitatively the same whether or not the long-run Phillips curve is vertical.

In the second part of their paper Modigliani and Papademos apply their analysis to the choice of hypothetical stabilization policies for the

United States in the years 1971—1975, using a price equation estimated for the period 1953—1971. They focus on the case of long-run trade off between inflation and unemployment, and, in that case, take 2 per cent inflation and 5.6 per cent unemployment as the long-run targets of policy. It turns out that, with no discounting of future costs, the optimal policy requires the unemployment rate to be for much of the time at 7 per cent if the unemployment cost is assessed twice that of inflation; and at as high as 9 per cent if unemployment and inflation costs are assessed to be equal. These compare with the actual average unemployment rate of just below 5.5 per cent. Even with 9 per cent unemployment the rate of inflation at the end of the period with optimum stabilization policy is only 2 per cent lower than its actual historical value (7 per cent versus 9 per cent). If there is no long-run trade off between inflation and unemployment the average unemployment along the optimal path tends to be higher; and in general the results seem to be more sensitive to changes in the parameters of the cost function.

The central implication of the empirical analysis is disquieting: a lot of unemployment has to be tolerated if the rate of inflation is to be brought down substantially in any reasonable period of time. So, in a sense, in their conclusion Modigliani and Papademos are back to where they start: are these costs worth taking? Or is there any other way but prolonged unemployment to bring down the rate of inflation.

Edmund Phelps takes up this question in the fifth article of this issue. He develops a model (or rather a series of models of increasing complexity) that assumes rational expectations and yet does not have the property that the rate of inflation can be brought down quickly without unemployment. However, given enough time, any target rate of inflation can be reached (perhaps only asymptotically) without unemployment in excess of the natural rate. This is in contrast with the adaptive expectation model in which unemployment is the very modus operandi of disinflation.

The reason why it takes time to reduce the rate of inflation in Phelps model is not the inertia of inflationary expectations but the existence of "overlapping multi-period contracts." Given the structure of wage contracts in the economy there is a unique time path of wages such that the target path of wage inflation will be reached without unemployment. The problem of stabilization policy is to find that path, and to guide wage settlements and conduct monetary policy in such a way that the economy will stay on it.

Consider first the simplest case of one-period contracts. Suppose that all wage contracts are signed at the end of the year and that they cannot be revised within the year (there is, in particular, no indexation). Then,

after all wage contracts have been signed, monetary policy has no effect on wage inflation within the year. Unanticipated monetary contraction will, instead produce a recession, if only for one year. Price stability — or any target rate of inflation — can, however, be reached within one year at the maximum.

Consider next the second model. Phelps assumes that at the start of each period money wage rates are reset for roughly half the jobs in the economy, a period later wage rates for the other half are reset, and so indefinitely. He assumes further that workers accept a reduction in their perceived relative wages only if there is current or anticipated unemployment, and are able to improve their relative wage position only if there is current or anticipated excess demand for labor. Accordingly, the condition of full employment is that the wage rate in the two-period contract signed in the current period is set equal to the (geometric) average of the wage rate set in the previous period and the "rationally anticipated" wage rate to be set in the next period. Involving the assumption of rational expectations, this condition yields a second order difference equation in the wage rate. The problem is now to find the wage path that satisfies this equation and reaches the target wage path in some finite time or else asymptotically. In the two-period case the solution to this problem is simple; the target wage path is reached after one time "catch up."

The main result of Phelps' paper is that there exists a unique solution to the above problem — a unique stabilization path without unemployment — for overlapping wage contracts of any duration. Typically the target wage path is reached only asymptotically and in an oscillating manner. Along this stabilization path "the appropriate average of new wages in each period is a function of ... the pattern of outstanding wages at that time." To Phelps this suggests the use of "adaptive guideposts" to guide wage settlements in such a way that wage inflation is brought down without distortions in relative wages — and thus without unemployment. Associated with the stabilization path is, of course, a monetary plan that involves a money supply growth path consistent with the implied time path of the average wage rate (and hence of the price level). But the time path of money supplied cannot be fixed independently if unemployment is to be avoided. In particular Phelps argues against gradualist programs of monetary contractions, which in this model invite "anticipatory wage increases at first that are excessive in relation to the money-supply increases initially provided." As he puts it, "steady deceleration of the money stock finally yields too much money in the future and hence too little money in the present."

In summary, Phelps develops a plausible model of inflation dynamics in which price stabilization without recession is a possibility. However,

the complexity of the implied time path of wages and of the implied monetary policy indicates the practical difficulties that such stabilization program would be likely to encounter. And, in any case Phelps' analysis does not promise speedy return to price stability or low inflation without unemployment in an economy characterized by overlapping multi-period wage contracts.

In the last article of this issue Stanley Fischer and Franco Modigliani provide a systematic account of the real effect of inflation. They note in the introduction that at present there is "no convincing account of the economic costs of inflation that justifies the typical belief ... that inflation poses a serious economic problem, relative to unemployment." The list that they provide is long and "surprisingly pervasive."

Fischer and Modigliani emphasize that the effects of inflation vary greatly depending on the institutional structure of the economy and the extent to which inflation is or is not anticipated. The effects are also likely to vary overtime as private and official institutions and practices adjust to ongoing inflation. A minimum estimate of the economic cost of inflation is provided by the cost of fully anticipated inflation in a fully indexed economy. These costs consist of the additional resources devoted to carrying out transactions with a smaller stock of real money balances — measured by the area under the demand for money function — and the additional resources spent on more frequent changes of prices. But on the other hand deduction in the real rate of interest, likely to result from higher inflation under these circumstances, may increase investment in real capital. Inflation tax on money balances may also substitute for other distortionary taxes, although the weight of this argument is not likely to be substantial in advanced countries with well developed fiscal systems.

If the above costs of inflation and the qualifications thereof were all that there is to the problem of inflation, it would be very difficult indeed to justify public concern about inflation on basis of rational economic analysis. But fully anticipated inflation and full indexation and adjustment to inflation rarely, if ever, exists. In most countries inflation causes serious distortions because the tax system is not indexed-progressive taxation of nominal income, taxation of nominal interest income and deductibility of nominal interest payment, taxation of nominal capital gains and so on, are some familiar examples. Inflation causes distortions also because private accounting practices take insufficient account of inflation and because the private sector may continue to use nominal contracts despite inflation — for example nominal annuity contracts in mortgages. The most significant redistribution effect of inflation is likely to arise from the decline in the real value of long-term nominal assets, issued at the time when inflation was not anticipated. Even if, on the

average inflation is "anticipated" a higher rate of inflation may be associated with greater uncertainty about relative prices and thus cause potentially serious misallocations of resources. Finally, high inflation may prompt policies — such as wage and price controls, nominal interest rate ceilings and so forth — to "suppress the symptoms of inflation" that have serious distortionary consequences.

It is likely that many of the above examples of the costs of inflation and others listed by Fischer and Modigliani decline in importance as the economy gets adjusted to inflation. The relevant cost of inflation in the planning of stabilization policy is accordingly not so much that cost of inflation per se but rather the cost of adjusting to inflation.