Argentina 1967-70: A Stabilization Attempt that Failed

Introduction

It is well-known that Argentina has had a very long history of inflation. Between 1950 and 1966 prices rose at an average annual rate exceeding 25 per cent; they seldom rose less than 10 per cent in any one year, and in one year they rose by as much as 100 per cent. During the same period, economic growth was slow, per capita GNP rising by only 1.3 per cent annually, despite a relatively slow growth of population of barely 1.6 per cent per annum.

There have been a number of attempts to stabilize the situation, notably in 1962-3, which were usually supported by agreements with the International Monetary Fund. If the rate of inflation is the measure, none of these attempts had even temporary, let alone lasting success. In 1966, however, a strong military government took command and in the following year launched yet another stabilization attempt; but on this occasion the IMF was not involved since Argentina at this time was not suffering from a current balance of payments crisis. This attempt appeared to have considerable initial success; the rate of inflation was reduced from around 30 per cent in 1965-66 to less than 10 per cent in 1969. Moreover, the economy's rate of growth accelerated to an average of 5½ per cent per annum. However, although there was no obvious change in the government's intentions to continue the progress towards price stabilization, and no obvious fundamental change in the methods pursued, the inflation rate accelerated in the course of 1970; and by the beginning of 1971 prices were once again rising at an annual rate approaching 40 per cent. Since then inflation has further accelerated.

This sudden collapse of the stabilization policy bears on the long controversy which has been waged between monetarists and structuralists concerning the causes of inflation in Latin America.[1] The monetarists have taken the traditional view that inflation is the consequence of unwise fiscal policies leading to deficit financing, excessive money creation, consequential and frequent devaluation, all of which for well-known reasons contribute to rapid inflation. This, in turn, has produced structural problems. The structuralists, on the other hand, have emphasized more deep-rooted structural characteristics of the typical Latin American economy: inelastic agricultural supply due, among other things, to inflexible land tenure systems; inelastic capacity to export, due to the low price and income elasticity of demand for primary exports, combined with a high income elasticity of demand for imports; and long-run rigidity and short-run instability of government tax revenue due to the fact that it was largely based on primary product export incomes, combined with the fast-growing, not easily controllable development and social demands for government expenditure. According to the structuralists, the application of monetarist policies dealt with the symptoms and not the root causes of inflation and instability.

However, it has to be said that while there are a number of instances in Argentina and other Latin American countries where IMF supported or initiated stabilization policies had little or no success and more often than not produced a severe recession in the economy with associated political and social problems, it is difficult to see what else the IMF could have done. Called in to provide short-term balance of payments assistance, there was little alternative but to prescribe short-run policies aimed at a restoration of the immediate balance of payments situation even if, as a consequence, long-run development problems were accentuated. The structuralists themselves had little pertinent economic advice to offer in such situations; and indeed it could be argued that the short-term monetary and balance of payments crises endemic in many Latin American countries have often been the consequence of faulty and inappropriate long-term policies pursued by governments, themselves strongly

1 See, for example, W. Baer and I. Kerstenetzky (eds.), *Inflation and Economic Growth* (Papers presented at a Conference on Inflation and Economic Growth, held in Rio de Janeiro, January 1963); Dudley Seers, "A Theory of Inflation and Growth in Under Developed Countries based on the experience of Latin America », *Oxford Economic Papers*, June 1963, pp. 192-5; Geoffrey Maynard, "Inflation and Growth: Some Lessons to be drawn from Latin-American Experience", *Oxford Economic Papers*, June 1961; Geoffrey Maynard, *Economic Development and the Price Level*, Macmillan, 1962 (especially Chapter IX).

influenced by structuralist views. Argentina appears to be a strong case in point.

The purpose of this article is to describe the nature and characteristics of the stabilization policy pursued in 1967-69; to explain why, despite its initial success, in the end it broke down; to draw the implications for the structuralist-monetarist controversy; and finally, to suggest conclusions that can be drawn for long-run development strategy and short-term stabilization policy in Argentina.

Stabilization 1967-69

The stabilization policy that was launched in 1967 appears to have followed very closely a model that was produced by the authors of this paper when working for the Harvard Development Advisory Service in Argentina.[2] The aim of this model was to outline the characteristics of a short-run policy that would slow down the rate of inflation over a period of three or four years while maintaining the growth of output and real wages. It did not — and it is important to emphasize this — set out to provide a complete explanation of inflation for reasons that will perhaps become clear later on. Essentially, the model[3] was based on an econometric analysis for the period 1950-64 of the determinants of the annual changes in output, the price level and money wages of the private sector of the economy, excluding agriculture. Since the object of the analysis was to provide a basis for guiding short-term money, credit and wage policy, the main independent variables in the model were those which the government could control or influence, namely, money supply, bank credit to the private sector (excluding agriculture), and money wage agreements arrived at during the annual wage negotiations between employers and trade unions, in which the government more often than not took an interested and often decisive part.

Depending on the particular values and combination of the policy instruments used, a menu of policy choices was presented although

2 This, of course, is not to claim that the new government made explicit use of the model in formulating its policy, although the model itself had had some publicity in Argentina before the new government took office. For details of the model and simulated policy strategies based on it, see G. Maynard and W. van Rijckeghem in G. Papenek, *Development Policy - Theory and Practice*, Harvard University Press, Cambridge, Mass., 1968, pp. 207-235.

3 See Appendix for the structure of the model.

no attempt was made to select the optimal combination. Nevertheless, the best results in terms of the speed with which inflation could be slowed down and output growth and real wages maintained, were shown to be produced by a policy which had in general the following characteristics:

(1) the negotiated rise in money wages in any given year had to be limited to a fraction (α) of the inflation rate of the previous year ($\alpha < 1$);

(2) the permitted increase in bank credit to the private sector in the year in question had to be at least as large as, and probably larger than, the negotiated increase in money wages ($\lambda \geq 1$, where λ is the ratio of the increase in bank credit to the increase in negotiated money wages);

(3) the permitted increase in total money supply in the year in question had to be some fraction β of the increase in bank credit to the private sector ($\beta < 1$).

The third element in the overall policy strategy clearly had implications for fiscal management, and meant that there had to be an appropriate restriction of the size of the government budget deficit and financing requirement and/or a diversion of government borrowing away from the banking system.

As indicated earlier, the stabilization policy that was launched by the new government in 1967 appears to have followed very closely the strategy outlined above. Table 1 summarizes the values assigned to the policy parameters (α, λ, β) in 1967 to 1970 and compares them with their implicit (non policy determined) values in the preceeding years.

The recommended wage policy of keeping the value of α below unity was clearly followed in 1968 and 1969. The government approached this by giving selective wage increases in 1967 to most workers, the size for each group of workers depending on when each group had last received an award. The object was to bring all workers roughly in line. Wage rates were then frozen until the end of 1968. Further wage increase were granted in 1969, and although as a consequence of mounting pressure from trade unions and students, these were probably larger than ideally the government would have liked given the underlying stabilization strategy it was pursuing, the annual rate of increase of money wages was reduced

TABLE 1

POLICY PARAMETERS 1965-1970

	1965	1966	1967	1968	1969	1970
Rate of increase in agreed wages	30	33	30	11	10	18
Rate of inflation in previous year (P_{t})	22	29	22	23	12	7
Policy parameter α	1.36	1.14	1.36	0.48	0.83	2.57
Rate of increase in bank credits (B_{t})	25	27	32	47	29	18
Rate of increase in agreed wages (η)	30	33	30	11	10	18
Policy parameter λ	0.83	0.82	1.07	4.27	2.90	1.00
Rate of increase in money supply (M)	29	31	31	30	16	23
Rate of increase in bank credits (B_{t})	25	27	32	47	29	18
Policy parameter β	1.16	1.15	0.97	0.64	0.45	1.22

from 30 per cent in 1966 and 1967 to 10 per cent in 1969. The wage policy was clearly abandoned in 1970, for reasons we come to later.

Efforts to reduce wage rate increases were, of course, elements in all previous attempts to stabilize the price level, but a significant difference from other stabilization attempts was the fact that the government made no attempt to reduce the rate of increase in money supply at the same time. In fact, in the years 1967 and 1968 money supply continued to rise at 30 per cent per annum. More important, the recommended money and credit policy of keeping λ greater than unity and β less than unity was followed in each of the three years 1967-9. Bank credit to the private sector rose at 1½ times the rate of increase of total money supply in 1968, and at twice the rate of increase of the latter in 1969;[4] and in both years it rose at a very much faster rate than the average rate of increase of money wages. This money and credit policy was made possible by a substantial improvement in government fiscal operations: the government succeeded in reducing the central government deficit from 33 per cent of total expenditure in 1966 to about 14 per cent in 1969,[5] and

4 The increase in bank credit to the private sector in 1969 turned out to be excessive since it contibuted to an outflow of capital.

5 As a per cent of GNP, the deficit was reduced from 3.6 per cent to 1.4 per cent.

a good deal more than half of the actual deficit was financed by borrowing outside the banks, in strong contrast to earlier years when on average well over 50 per cent of government deficit was financed by recourse to the banks.

How far were the policy objectives attained? Did the stabilization policy achieve the principal target of reducing the inflation rate, without causing a recession and a deterioration in real wages? The answer is given in Table 2.

TABLE 2

REALIZED POLICY OBJECTIVES 1965-1970

	1965	1966	1967	1968	1969	1970
Rate of inflation (P_{t})	29	22	23	12	7	14
Rate of growth of non-agricultural output (z_{t})	8	1	1	7	6	5
Rate of growth of real wages	1	11	7	− 1	3	4

It appears that the objectives were very largely achieved by 1969 when the rate of inflation was reduced to 7 per cent. The rate of growth of non agricultural output was always positive although only small in 1967, and it accelerated very rapidly in 1968 and 1969. Although there was a slight fall in real wages in 1968 when the wage freeze was imposed, they rose satisfactorily in 1969 and also over the stabilization period as a whole. For the period as a whole, the formal econometric model which established the essential characteristics of the stabilization policy "predicted" these developments reasonably well, although in general it over predicted the behaviour of the price level (see Appendix).

In the main, of course, the stabilization policy pursued followed the monetarist line with, however, the significant difference mentioned earlier that in the early stages, less attention was paid to reducing the rate of growth of the money supply and more attention to reducing the money wage increases and improving public finances. Also the government entered into a number of agreements with large firms to limit price increases, and these were more or less effectively enforced. It is important to note that the policy was not based on restriction of aggregate demand in the normal sense. Sub-

stantial unemployment and excess capacity in industry existed in 1966 and the high rate of inflation of that year and previous years could not in any sense be attributed to excess demand. Aggregate demand in fact rose strongly throughout the stabilization period and it was met by a parallel rise in output. Why then did the policy break down in 1970 and 1971?

Collapse of the Stabilization Policy

The answer quite simply is to be found in the price of beef. This began to rise sharply in the latter part of 1969: between November 1969 and August 1970 it rose by over 30 per cent and by a further 50 per cent in the course of the next six months. In the face of this, it became impossible to continue the policy of progressive reductions in the rate of increase of money wages, and thus to continue with the complementary policies in the field of money and credit. Although the rate of increase of bank credit to the private sector in 1970 continued to decline from its high in 1968, the impact of faster rising money wages in the government sector checked the improvement that was being achieved with respect to the budget; and bank lending to the government took a larger share of a faster rising money supply. Thus inflation in general began to accelerate, so that in the course of 1970 itself the cost of living rose by more than 20 per cent and by a further 10 per cent in the first three months of 1971.

The rise in the price of beef cannot be explained by a prior breakdown in wage and monetary policies which precipitated overall excess demand in the economy in the usual sense. Real incomes certainly rose in the course of 1969 as a result of the real growth of the economy, and this contributed to an increase in the demand for beef; but the main factor was clearly a decline in the supply. In part a manifestation of the normal 6-year Argentine cattle cycle,[6] but in the main a consequence of policies pursued in 1967 and 1968, cattle herds began to be depleted in 1966, a process which culminated in heavy slaughter rates in 1968 and 1969. As a result of policies pursued there was a lack of incentive to invest on the part of cattle ranchers. Although, as a prelude to stabilization, the Argentine

6 The stocking and de-stocking of cattle herds.

currency was devalued in March 1967 by a massive 40 per cent — a course of action which would normally tend to raise the domestic price received by and incomes of beef producers — high export taxes levied at the same time syphoned off most if not all of the gain. Domestic inflation, however, continued although at a slower rate, and as a result the terms of trade of the livestock sector worsened: livestock prices relative both to crop prices and to non-agricultural prices in general declined by nearly 10 per cent from 1966 to 1969. This policy, which of course served to depress exports and contributed to a severe worsening in the current account of the balance of payments over the stabilization period, was also an important element in the success of the stabilization measures being pursued at the same time, because it diverted beef supply to the domestic market. This depressed prices in a relative sense to the domestic consumer and thus made the wage policy more acceptable to the worker. But depletion of herds could not continue indefinitely, and by late 1969 the cycle began to be reversed. Ranchers began to withhold breeding stock from the market and prices began to rise. This process was accelerated by unusually favourable grazing conditions in the autumn of 1970 which encouraged cattle ranchers to withhold sales so as to take advantage of the expected price trend.

Structural Factors Underlying Inflation and Slow Growth

The role of beef prices in Argentine inflation has long been recognized. The fact that beef is both the major export commodity and an important wage good explains why large scale currency devaluation repeatedly failed to produce more than temporary improvement in the balance of payments situation, whilst at the same time more often than not accelerating the rate of domestic inflation. In a situation of inelastic domestic demand and supply, devaluation could only produce a temporary improvement in the balance of payments provided it was accompanied by other domestic policies aimed at reducing real incomes and output in the economy as a whole. Despite the fall in real income and output produced by the combination of devaluation and restrictive monetary policy, the burden of which usually fell most heavily on the private sector, inflation accelerated owing to the impact of rising domestic beef prices on money wage contracts. The repeated need to reduce output

and real incomes in turn produced over the long run a low rate of economic growth, even though in the intervals between successive balance of payments crises the Argentine economy showed the capacity to grow at a very fast rate.

Underlying this short-term situation, and indeed a basic cause of both inflation and long-run growth of the economy, was the slow *long-term* growth of agricultural output. Between 1945 and 1965 total agricultural output rose by barely 20 per cent, much less than 1 per cent per annum and roughly half the rate of population growth in the same period. Admittedly, this overall performance disguises the fact that in the first decade of the period output actually fell by 10 per cent; even so, from the mid-1950's to the end of the 1960's the annual average growth rate of agriculture has been only slightly above the rate of population growth, which in Argentina has been low as compared with other Latin American countries.

The fall in agricultural output in the first postwar decade was very largely the consequence of deliberate government policy aimed at the transfer of wealth and political power from rural to non-rural sectors and at the promotion of industrialization. The policy of industrial promotion may well have been influenced by a reading of the experience of the 1930s, which saw the collapse of primary product prices and decline in Latin American export incomes, and by the second world war which cut Argentina off from its traditional suppliers of manufactured goods. Fear that the postwar boom in primary product prices would be of short duration and that another outbreak of hostilities was impending, caused Argentina to put emphasis on domestic income generating and employment creating activities and on the protection and further promotion of industries which had been developed in the 1930s and during World War II. Moreover, apart from the adverse effects of these policies on production, agricultural exports were also held back by the fact that an increasing proportion of domestic output was consumed at home. As a result of all these factors, Argentina's share of world exports of beef and grain fell considerably from the 1930s to the 1960s, a fact which demonstrates *that domestic factors, rather than a lack of foreign demand*, held back the growth of agriculture and the economy.

From the early 1950s, the balance of payments became a serious constraint to the growth. The fall in world prices could not be offset by rising volume because of the difficulties experienced both in raising production and in directing an adequate volume of output to exports.

Moreover, the large foreign exchange reserves accumulated during the war became exhausted. Efforts to promote growth since then have been hindered by a legacy of problems generated by these past policies which have contributed to inflation and made it difficult to control. These include the creation of uneconomic state enterprises, a weakening of public finances and a lack of confidence on the part of the rural sector. Efforts to overcome the balance of payments bottleneck by recourse to massive doses of external capital, for instance in 1960-62, had the unfortunate by-product of creating a serious external debt problem. By 1970 Argentina's external debt service payments, both public and private, probably amounted to over 30 per cent of its foreign exchange earnings.

Although it was the failure of agriculture to grow in line with the rest of the economy which caused both the balance of payment difficulties and the slow growth of the economy as a whole, a vicious cycle was in operation: the repeated use of exchange rate depreciation, aimed at improving the balance of payments, and the consequential accelerated domestic inflation, combined with a far from consistent export retention tax policy produced wide short-run fluctuations in agriculture's terms of trade which offset the gradual long-term improvement which admittedly took place following 1960. It is clear that wide short-run fluctuations are inimicable to long-term agricultural development since investment with long pay-off, such as that in equipment, permanent pasture and on-farm storage capacity is discouraged by them.

Of course, despite the slow growth of agriculture, substantial industrial development has taken place in Argentina in the post World War II period, and a more complex and developed industrial sector now exists than can be found in most countries with comparable population size and per capita income level. The share of manufacturing production in GNP was almost one-third in 1966 which given its per capita real income makes Argentina one of the most industrialized countries in the world; and the per capita production of industrial products was about two-thirds of that in Italy in the same year. However, the process of industrial development through import substitution in an environment of almost complete protection against imports has led to high production cost which in large part reflects excessive product differentiation and inability to take advantage of economies of scale. Because of its high costs,

industry is almost entirely domestically oriented, only a few industries (for example, railway cars, calculators, pharmaceuticals, tyres, etc.), having been successful in selling their products abroad. The industries that were expanded or created were not such as to raise Argentina's export capacity; nor did they in the long-run significantly reduce the ratio of imports to national product. Instead, highly capital intensive local monopolies catering solely for the domestic market have been created behind high tariff walls; and until very recently these worked well below full capacity. Moreover, being capital intensive, this development has not created employment on the same scale, as a consequence of which the public sector has been put in the position of absorbing large amounts of inefficiently used labour. Inflation has exacerbated the problem of obtaining industrial financing, and this helps to explain the prominent place which subsidiaries of foreign firms occupy in the Argentine economy by virtue of their access to external sources of capital. Indeed, recent industrial development has been based to an important extent on foreign capital, a large part of which has taken the form of supplier's credits contracted on expensive terms.

The character of Argentine industrial development has in turn affected the growth of agriculture and Argentina's balance of payments. On the one hand, the high prices of industrial consumer goods relatively to the domestic price of meat has encouraged the Argentine consumer to spend a larger part of his budget on meat and foodstuffs in general than would normally be expected given his per capita level of income. On the other hand, the high price of industrial inputs to agriculture has delayed the mechanisation of the industry and therefore operated to hold back the growth of output. Both factors, of course, have operated to maintain a tight balance of payments restriction on Argentina's overall economic growth.

The fate of the 1967-69 stabilization measures, for the short and long-run reasons referred to above, appears to support the structuralist position against that of the monetarist, in the sense that it demonstrates very clearly that short-run stabilization measures and long-run development strategy are intimately related to each other. It is clearly not possible at present to prevent inflation in Argentina by monetary measures alone no matter how well designed. But it must also be admitted that without appropriate monetary measures of the kind discussed earlier which is aimed at slowing down the rate of inflation, it may in fact be difficult to produce the long-run structural

changes and long-run improvements in agriculture which are required if Argentina is to succeed in obtaining faster economic growth with more price stability.[7] Paradoxically too, it might be argued that the character of economic development that has taken place in Argentina over the last thirty years resulting in the present restricted situation that Argentina now finds itself in, reflects more the structuralist position than the orthodox monetarist one which usually embraces the virtues of freer trade. The structuralist position has tended to support a policy of long-run development based on import substitution and a switch of resources from primary production towards industry; and certainly there is reason to believe that postwar Argentine economic policy was influenced in some degree by the early views of the Economic Commission for Latin-America in this respect. In retrospect, however, it must surely be obvious that the pattern of economic development that has taken place in Argentina during the last 30 years has resulted in the country benefiting far less from international trade than would have been possible given her natural resources and export potential. As a consequence of this, real income per capita in Argentina has lagged well behind that of other countries with similar resource endowment (for example, Australia), while a depressed agricultural sector and low rural income have created increasingly serious social problems and political tension.

Policy for the Future

The burden of this argument is that if Argentina wishes to attain faster economic growth with more price stability, future long-term development strategy must aim at integrating the domestic economy much more into the international division of labour. This does not mean, of course, that Argentina has to become primarily an agricultural country or that its industry has to be largely destroyed; it simply means that relatively more resources in the form of capital, enterprise and technology should be directed towards agriculture and agricultural processing industry than has been the case in the past; and it also means that a larger proportion of domestic output, both

7 As Professor W. A. Lewis has argued, while structural factors may explain why some moderate inflation cannot be avoided as economic growth proceeds, they cannot explain why the inflation rate should be 25 per cent or more. This requires a wage-price spiral and chronic budget deficits.

agricultural and industrial, should be sold abroad and a larger proportion of the country's domestic consumption of industrial products be bought from abroad. Past development, based heavily on high cost import substitution, has produced a situation in which agricultural prices are too low and industrial prices are too high relative to each other; this in turn, as mentioned earlier, has induced a pattern of consumption unduly weighted in favour of foodstuff, given Argentine per capita income levels. A greater degree of integration of Argentina into the world economy would not result in her traditional high standard of living in terms of food being eroded; the possibilities of agricultural expansion are so enormous that in the long run increased exports of agricultural products would not have to be at the expense of domestic consumption; but it would result in the standard of living in terms of industrial products being materially raised. Moreover, the rationalization and specialization in industry that would inevitably result from it being exposed more to international competition would not necessarily result in industry's contribution to GNP becoming significantly less; it would mean that it would become less oriented towards domestic markets and more towards foreign.

Unfortunately, it has to be admitted that in the short run at least, there are difficulties in opening up the economy to more foreign competition along the lines suggested above. Apart from the frictional problems associated with restructuring industry and employment the main problems are first, the constraint imposed by the existing balance of payments position which has been exacerbated by Argentina's external debt, and second, the problem of improving agriculture's terms of trade and maintaining them for a sufficiently long period of time to make them effective, whilst at the same time achieving and maintaining reasonable overall price stability. For if inflation cannot be reduced significantly the chances of farmers being induced to invest in productivity raising schemes rather than in the purchase of new land as a hedge against inflation cannot be great. An essential part of the solution is to prevent money wages and, therefore, industrial costs and prices rising in line with domestic food, particularly beef prices (Argentina must take itself off the "beef standard"); but undoubtedly the process of improving the terms of trade of agriculture and shifting the pattern of consumption away from beef to other non agricultural products would be simpler if industrial prices could be lowered. But this again means opening

the economy to more foreign competition in the industrial sector by a programme of tariff reductions on industrial wage goods. Short and long run measures would then work together to produce both the required shift in resource use and a more stable price environment.

It must be emphasized again that none of this implies that Argentina's industry must be substantially destroyed. Nor does it mean that Argentina must be faced with a serious unemployment problem. In the long run Argentine industry must become a substantial earner of foreign exchange through the promotion of industrial exports, but this can hardly be achieved on the basis of the present structure of industry in an environment of rapid inflation. As for employment, Argentina already suffers from substantial disguised unemployment in the form of large amounts of unproductively used labour in the public sector of the economy. In the long run this labour will have to be absorbed in the private industrial sector, but this means that the rate of growth of industry must be higher in the future and the structure of industry must be less capital intensive biased. If industry is to be able to grow faster in the future the balance of payments restraint must be relaxed; and although in the long run industrial exports will make their contribution, in the short and intermediate period it is agricultural exports that must make the running. Thus a move towards integrating Argentina much more into the international economy is not against the long-run interests of industrial development but on the contrary a necessary prerequisite to it.

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APPENDIX

The model consisted of three behavioural equations and three equations defining policy parameters. The three behavioural equations were derived from an econometric analysis of the determinants of the annual changes in output, non agricultural prices and money wages in the period 1950-65, and were as follows:

(i) $z_r = 2.30 + 0.13(B_r - \eta) + 0.22m_{o-\frac{1}{2}} + 0.13z_a$ $\quad R^2 = 0.81$
(0.04) (0.05) (0.09) $\quad DW = 1.74$

(ii) $P_r = 7.16 + 0.70M_{-\frac{1}{2}} - 0.89z_r + 0.30\eta - 1.82\pi_c$ $\quad R^2 = 0.86$
(0.47) (0.57) (0.26) (0.72) $\quad DW = 1.85$

(iii) $S_r = 3.95 + 0.68\eta + 0.25\eta_{-1}$ $\quad R^2 = 0.87$
(0.08) (0.08) $\quad DW = 1.99$

Where Z_r is the annual percentage change in gross output of the private sector, excluding agriculture;

Z_a is the annual percentage change in gross output of the agricultural sector;

B_r is the annual percentage change in bank credit to the private sector, excluding agriculture;

η is the annual percentage change in agreed or negotiated money wages;

m_o is the annual percentage change in non-capital good imports;

P_r is the annual percentage change in the price level of the private non-agricultural sector;

$M_{-\frac{1}{2}}$ is the average of the annual percentage changes in the money supply in the current and previous year;

S_r is the annual percentage change in *actual* money wages;

π_c is a price control proxy.

Equation (i) "explains" annual changes in private sector non agricultural output in terms of increases in bank credit to the sector deflated by negotiated money wage increases, imports of intermediate (non-capital) goods lagged 4 months, and annual changes in agricultural output.

Equation (ii) is the price determining function in which the main explanatory variables are changes in the money supply lagged half a year, changes in non-agricultural output and changes in negotiated money wages. Substituting the output equation into the price equation we get a reduced form equation for price changes, viz

(ii) $P_r = 0.35\,M + 0.35M_{-1} - 0.12B_r + 0.42\eta - 0.20m_{o\frac{1}{2}} - 0.12z_a - 1.82\pi_c + 5.11$

Equation (iii) explains changes in actual money wages in terms of current and one year lagged negotiated money wage increases and indicates that actual money wages are affected by "wage drift".

The three equations (iv) to (vi) define policy parameters.

(iv) $\eta = \alpha P_{r-1}$

(v) $B_r = \lambda\eta$

(vi) $M = \beta B_r$

Equation (iv) specifies a policy determined relationship between the rate of inflation in the previous year and the negotiated change in money wages in the current year; equation (v) specifies a policy relationship between bank credit to the private sector and negotiated money wage increases; and equation (vi) specifies a policy relationship between the change in total money supply and the change in bank credit to the private sector, which has implications for public sector budgetary financing. (The logic of the model is discussed somewhat more fully in the reference quoted in footnote 2.)

Predicted actual values

The table below compares the "predicted" and actual changes in the output and price level of the non-agricultural private sector. The "predicted" changes are obtained by inserting into the equations of the model outlined above values of the independent variables as set out in Table I in the text, and in the footnote below (*).

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* Changes in agricultural output were as follows:

1965	+ 10	1968	− 6
1966	− 5	1969	+ 6
1967	+ 6	1970	0

Annual percentage changes in non-capital good imports were as follows:

1966	− 3.0	1969	+36.5
1967	− 4.6	1970	+ 7.8
1968	+ 3.7		

ANNUAL PERCENTAGE CHANGES IN NON-AGRICULTURAL SECTOR

	Output		Price Level	
	Predicted	Actual	Predicted	Actual
1965	+ 6	+8	+33	+29
1966	+ 1	+1	+37	+22
1967	+ 2	+1	+37	+23
1968	+ 6	+7	+26	+12
1969	+11	+6	+20	+ 7
1970	+ 6	+5	+21	+14

It will be seen that "predicted" and actual values of the annual changes in non-agricultural output correspond rather well except for 1969: in this year, imports rose very strongly but there is some evidence that many of these were absorbed into stocks rather than by current production. The price equation, although in general getting the directions of change in the price level correct from 1967 on, clearly over-predicts the rate of inflation in the private non agricultural sector. One reason for this may be that the government entered into price restraining agreements with many of the major firms, and these in general were observed fairly closely. No allowance is made for these in the equation determining price behaviour.

G. M. - W. VAN R.