

CAUSES OF BRAZILIAN POSTWAR INFLATION, 1947-1964

by

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B. A. Tehran University, 1969

A MASTER'S REPORT

submitted in partial fulfillment of the
requirements for the degree

MASTER OF ARTS

Department of Economics

KANSAS STATE UNIVERSITY

Manhattan, Kansas

1975

Approved by:


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ACKNOWLEDGMENTS

The Author would like to express thanks to Dr. E. Wayne Nafziger, Associate Professor of Economics at Kansas State University, and to Dr. K. Rao Akkina, Assistant Professor of Economics at Kansas State University, for their constructive criticism and assistance in the writing of this paper.

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INTRODUCTION

Brazil occupies a land area of 3,286,647 square miles, the fifth largest country in the world, and has 16,792 square miles of water. It is only surpassed in area by the Soviet Union, the United States (including Alaska), China (including Manchuria) and Canada. In continuous land area it ranks in 4th place, larger than the United States. It occupies 1.7% of the area of the globe, 5.7% of the total dry land and nearly half (47.3%) of the area of South America. The country covers 39 degrees of latitude and 39 degrees of longitude.¹

Four-fifths of Brazil is situated between the Equator and the Tropic of Capricorn, however; since 57% of the land lies between 650 and 3000 above sea level, latitude is offset largely by altitude.² Other factors such as prevailing winds, rainfall and distance from the ocean combine to vary the climate from tropical to temperate. Brazil has a general tropical climate which is not suitable for cultivation. According to the 1960 Census, its cultivated area did not then exceed 3.5 percent of the total territory and experts doubt whether it could be much extended in future.³

Although Brazil was occupied by the Portuguese 100 years before the colonization of North America, its economic development still lags far behind that of its northern neighbors. In many respects such as per capita income and literacy and health standards, it has not yet reached the stage of development of some Latin American countries, and some of its densely populated regions are among the poorest in the world.⁴

Brazil's backwardness can be attributed to a number of factors: the ethnic composition of its population, its tropical climate, the poverty of its soil, and the general configuration of its land are a few of these factors.⁵

Two more of Brazil's major handicaps in economic development are lack of fuel and inadequate transportation. First, its coal is located far to the south in a state of Santa Catarina, and has a very high ash and sulphur content. And second, inland transport is impeded by the presence of hills and mountains, and in particular, by the difficulty of climbing the Great Escarpment.⁶ This difficulty is greatest in the more densely populated south-east, where the climate is temperate, the soil most fertile, and the subsoil richest in minerals.

On the other hand, its population has increased very fast. It is today more than five times of what it was in the early 1900's, at the peak of the coffee boom, and probably more than sixty times greater than in 1780.⁷ In recent years the rate of population growth has risen to more than 3 percent a year. It is around 4.4 percent in the urban area. Its population rose from 74 million in 1962 to 102 million in 1973 (almost 40 percent increase during this period).⁸

It should be kept in mind that apart from these obstacles for achieving economic development, Brazil had one of the most rapid rates of economic growth in the world during the last two decades, especially from 1965 (see Table 1).

Table 1

| Average Annual Growth Rate of Brazil (1955-71) | | | | |
|--|------------------|------------------|------------------|-------------------|
| 1955-60 | <u>1960-65</u> | <u>1965-70</u> | <u>1970</u> | <u>1971</u> |
| 5.9 ^a | 4.5 ^b | 7.5 ^b | 9.5 ^b | 11.3 ^b |

Source: United Nations, Economic Survey of Latin America, a: 1965, P. 145;
b: 1971, P. 90.

This substantial rate of growth of Brazil's economy in the late Sixties, especially after 1967, induced M. Friedman to consider Brazil " --- the third

major nation in recent history to take off on a period of growth so rapid as to justify the term economic miracle," and he compares Brazilian take-off miracle with Germany and Japan.⁹

Chronic and large scale inflation has been the most prominent feature of Brazil's economy in the postwar period. Inflation is by no means a new experience for the Brazilian economy. For more than four centuries, Brazil's export-oriented economy was characterized by a succession of boom periods during which the most enterprising of its inhabitants directed their main energies to the production of one single good in which the country had exceptional advantages - dye-wood in the sixteenth century, sugar in the seventeenth, gold in the eighteenth, and coffee in the nineteenth and the first three decades of the twentieth. Each one of these booms period have deeply affected the pattern of economic activity and price level.¹⁰

Brazil suffered sharp inflation during World War II along with much of the world. South America was largely cut off from imports from the industrial nations, though it sold raw commodities to them. The double impact of shortages of supplies coupled with the surpluses in the balance of payments brought about a price rise in Brazil of about 15 percent a year between 1939-1948.¹¹ (See Table 2)

It is the purpose of this report to describe causes of Brazilian inflation in the postwar period. The early inflationary pressures, as we can see, started from 1946-47 by expanding credit to the private and public sectors¹² and continued in the 50's and early 60's when the government produced large deficits, rapid increases in quantity of money and inflation reached a rate of more than 100 percent a year by early 1964.¹³ It seems reasonable to look at the causes of inflation from 1946 up to 1964. Because, first of all, from

Table 2
Cost of Living Index for Rio De Janeiro, 1939-48
Annual Average for Each Year (1953 = 100)

| Years | Index | Annual % change |
|-------|-------|-----------------|
| 1939 | 21.6 | -- |
| 1940 | 22.2 | 4.2 |
| 1941 | 24.6 | 10.8 |
| 1942 | 27.4 | 11.4 |
| 1943 | 30.3 | 16.6 |
| 1944 | 34.1 | 12.5 |
| 1945 | 39.7 | 16.4 |
| 1946 | 46.3 | 16.6 |
| 1947 | 56.4 | 21.8 |
| 1948 | 58.3 | 3.4 |

Source: M. H. Simonsen, "Brazilian Inflation Postwar Experience and Outcome of the 1964 Reforms," from Economic Development Issues: Latin America (N. Y. Frederick A. Prooger, Inc., Publishers, 1967), p. 269.

the early 1960 during the stage of galloping inflation.¹⁴ The early phenomenon of inflation interacted in such a manner that it is not possible to say which is the cause and which one is the effect.¹⁵ And second, after the Brazilian army assumed power in March-April, 1964, and after disposing the Goulart government the new administration under President Castelo Branco attempted to suppress the inflation by measures such as fixing price average, controlling foreign exchange transaction, and introducing multiple exchange rate.¹⁶

Before starting to describe the causes of inflation in Brazil, the next chapter will consider some definitions of inflation and general causes of inflation. The second chapter will look at the relation between inflation and development. Chapter III will examine the causes of inflation in Brazil.

Footnotes

1. Survey of the Brazilian Economy (Brazilian Embassy, Washington, D. C. 1966), p. 1.
2. Ibid., p. 3.
3. R. Kahil, Inflation and Economic Development in Brazil (London, Oxford University Press, 1973), pp. 5-9.
4. Ibid., p. 5.
5. Ibid.
6. Ibid., p. 10.
7. Ibid., p. 15.
8. United Nations, Monthly Bulletin of Statistics, several issues.
9. M. Friedman, "Economic Miracles", Newsweek, January 21, 1974, p. 80.
10. R. Kahil, op. cit., pp. 11-14.
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12. E. Gudin, "Postwar Economic Development of Brazil", The Economy of Brazil (Berkeley, University of California Press, 1969, Ed. H. S. Ellis), pp. 11-14.
13. M. Friedman, Newsweek, p. 80.
14. The rapid rise in prices without limit is known as a runaway or galloping inflation, McGraw-Hill Dictionary of Modern Economics (N. Y., McGraw-Hill Inc., 1965), p. 245.
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16. F. Underwood, The Brazilian Revolution, 1964-71 (unpublished Master Thesis, 1972 at KSU), pp. 32-52.

CHAPTER I

INFLATION

Inflation is one of the most intensely studied problems in economics in terms of both theory and empirical studies in specific countries. The study of inflation has greatly increased in recent years, especially in Latin America. This is probably due to the fact that inflation in Latin America has been more widespread and more severe than in any of the other developing regions of the world.

In the minds of many people inflation is inseparably linked with deficit financing. One of the leading monetary economists of the last generation, A. C. Pigou, defined inflation as " ... that part of the rise in prices that is consequent upon governmental interference with money and banking."¹ The concept of inflation has undergone considerable modification since it was first treated by neoclassical economists. To them inflation usually meant what we would today describe as "hyperinflation" or a complete loss of confidence in the currency resulting in astronomical price rises and perhaps complete monetary collapse.² It would not be strictly accurate to say that the concept of inflation has changed over the last forty-five years, but rather that many economists would now argue there are several different strains of the disease. We are no longer confined to the wild feverish strain of hyperinflation, but constantly experience the slow, creeping, and sometimes galloping variety.³

Inflation denotes a situation in which the money demand for output grows relatively to output, the situation being manifested, in the absence of effective controls, in the form of rising prices per unit of output. Despite the absence of an agreed definition among economists, inflation is usually associated with

an actual or potential rise in the general level of prices, i.e., a decline in the purchasing power of the monetary unit.⁴

Definition is not sufficient by itself to indicate the full meaning of a term, and it is necessary to discriminate between the various types of inflation, each of which calls for a different remedy. Accordingly my next task is the classification of inflation with regard to causes of inflation.

Causes of inflation:

Generally speaking, there are two schools of thought on the causes of inflation which can be summarized under the headings of demand-pull and cost-push.⁵

A. Demand-Pull Inflation

According to this theory, prices rise in response to an excess of general demand over existing supply. Adherents to this theory follow the traditional definition of inflation as the result of a situation in which money expenditure exceeds output at current prices.⁶ So the theory receives support when prices rise during a period of full employment, shortages of goods, and production bottlenecks, as it happened in the United States after World War II, during the Korean War, 1966-69, and more recently in 1972.⁷ The demand-pull theory of inflation can be explained, however, in either of two ways: by the quantity theory of money or by Keynesian analysis.

The crude formulation of the quantity theory of money ascribes inflation to the effect of increased money spending at the full employment level of output. A more sophisticated view of the process suggests that the increase in the quantity of money finds its way into the economy in the form of increased bank loans to finance investment.⁸ Investment then exceeds the current rate of saving, and hence, aggregate demand exceeds the full employment supply of

goods and services which causes rising prices as buyers bid for the limited supply of goods.

The work of Keynes suggests another interpretation of the inflationary process. In Keynesian theory there is not a direct relation between the quantity of money and aggregate demand postulated by the quantity theory, and Keynesians argue that the quantity of money indirectly affects prices through its effects on the components of aggregate demand—consumption, investment, and government spending.⁹

B. Cost-Push Inflation

A different view of the prime cause of inflation holds that the process of inflation is initiated not by an excess of demand but by an increase in cost of factors of production, as these resource holders try to increase their share of the total product by raising their prices.¹⁰ In other words, demand-pull inflation can occur only when there is excess aggregate demand from it, cost-push inflation, however, can take place in the absence of such conditions. Cost-push analysis assumes monopoly elements either in the product market, if a profit push is responsible for inflation, or in the labor market (monopsony) if a wage push leads to a cost-price spiral. Therefore cost-push inflation would not occur in an economy of competitive product or labor markets. Cost-push theorists rarely consider autonomous attempts to increase profit as an important inflationary element, and it is generally synonymous with wage push, which in turn is equated with union push.¹¹ Therefore cost-push inflation requires the existence of organized labor with sufficient strength to push up wages, even in the absence of any excess demand for labor.

C. Structural Inflation

The third theory of causes of inflation which can explain the inflationary

process is structural theory. This theory of inflation holds that rising prices result from changes in the composition rather than the total volume of demand. This structural changes in demand will tend to bid up prices and wages in the industry experiencing an expanding demand. The net effect of rapidly raising prices in one industry and stable or slowly falling in another industry is a rise in over all level of prices.¹²

Schultz believes that the causes of creeping inflation of the 1950's of the United States can be explained by this theory.¹³ In his study, Schultze shows how an increase in the demand for the product of one particular industry and an equivalent reduction in the demand for the product of another industry leads to increases in the overall level of prices and wages because of institutional factors that do not permit changes in relative prices and wages.¹⁴ Unions play an important role in structural inflation. They do not create the inflation, but they generalize it to other sectors of the economy. Therefore in the case of structural inflation, unions can be viewed as boosters of inflationary pressures that originated elsewhere in the economy.¹⁵

These three theories of inflation are not mutually exclusive, and all three forces may operate at one time. An inflationary period may be characterized by demand-pull, cost-push, and structural pressures in varying degrees. It follows that distinguishing between cost-push, demand-pull, and structural forces at the time the inflation is actually occurring is extremely difficult.

In underdeveloped countries, especially in Latin America, there is a tendency to divide the students of inflation into two groups - the monetarists and the structuralists. In very broad terms the monetarists regard inflation as basically a monetary and fiscal phenomenon. The monetarists' position reflects the orthodox explanation of inflation in terms of the expansion of the volume of money in relation to the growth of real output. The structuralists, on the other hand,

see both the fundamental causes and the socially acceptable remedies of inflation in the economic and social structure.¹⁶ The structuralists begin by stating that it is not enough to show that inflation is accompanied by monetary expansion, but we should know what structural factors in the economic process underlie both the price increase and the monetary expansion.¹⁷ The views of monetarists and structuralists are discussed below in more detail.

Footnotes

1. A. C. Pigou, The Economics of Welfare (London, McMillan and Co., Ltd., 1952).
2. R. J. Ball and P. Doyle, Inflation (Penguin Books Ltd., Middlesex, 1969), p. 7.
3. Ibid.
4. A Dictionary of Social Sciences (N. Y., The Free Press of Glancoe, 1964, Ed. by J. Gould and W. Kolb), p. 330.
5. R. Perlman, Inflation: Demand-Pull or Cost-Push? (Boston, D. C. Health and Co., 1965), p. VII.
6. Ibid., p. IX.
7. J. M. Kreps, G. G. Somers, R. Perlman, Contemporary Labor Economics (California, Wadsworth Publishing Co., Inc., 1974), p. 428, Table 20/1.
8. Ibid., p. 435.
9. J. M. Keynes, The General Theory of Employment, Interest, and Money (N. Y., First Harberger Edition, 1964).
10. R. Perlman, op. cit., p. X.
11. Ibid.
12. J. Kreps, G. Somers, R. Perlman, op. cit., pp. 438-9.
13. C. Schultze, "Recent Inflation in the United States", from, Inflation: Cost-Push or Demand-Pull (Ed. R. Perlman) op. cit., p. 34.
14. Ibid., pp. 34-37.
15. J. Kreps, C. Somers, R. Perlman, op. cit., pp. 437-8.
16. R. F. Mikesell, "Inflation in Latin America", Latin America, Problems in Economic Development (N. Y. The Free Press, 1969, Ed. C. T. Nesbet), pp. 150-58.
17. D. Seers, "A theory of Inflation and Growth in Underdeveloped Countries Based on Experience of Latin America", Oxford Economic Papers, Vol. 14, No. 2, 1962, p. 192.

CHAPTER II

INFLATION AND DEVELOPMENT

In many of the less developed countries incomes are not rising as rapidly as the aspirations of the community. In these countries, personal savings are low, so that only limited resources are released for the expansion of the community's capital. At the same time, the tax systems provide only enough revenue to meet part of the community's desires for government services, with very small surplus available to finance development. Under these circumstances, inflation may appear to be an easy method of providing finance to expand investment and hence to be an easy way of obtaining capital for a more rapid expansion of output.¹ If the government can persuade the central bank to create money to finance a development program, or if the banking system freely makes loans to private investors for the financing of physical investment, the problem of expanding the community's real assets may appear to be easily solvable. Consequently, it is sometimes argued that a case can be made for making inflation an instrument of (development) policy, rather than the control of inflation an object of policy.² There is no doubt that, on occasion, a monetary expansion somewhat greater than the current increase in real output will introduce an element of flexibility in an economy and lead to some "forced-saving"³ releasing resources for development. However there are limits to the amount of development which may be fostered in this way.

This inflationary tendency is different from country to country and is attributed to differences in their economic and institutional structures and the degree of use of inflation as an instrument of economic policy.⁴

It is my intention in this chapter to review the theoretical influences and the empirical evidences about the relation between inflation and development especially with respect to underdeveloped countries.

A. Theoretical Influences

One of the first pioneers in the literature regarding the conscious resort to inflationary measures for purposes of economic development is John M. Keynes. Keynes in the 1920's gave the explanation how governments used deficit financing through money printing to finance their war expenditures.⁵ The inability of governments to raise money through taxation has been replaced by inflation, which is used as a method of taxation.

W. Arthur Lewis refers to this policy in the same way, when he states: "The choice between inflation and taxation is largely political. Governments are driven to inflation when they think the political difficulties in raising resources in this way are less than the political difficulties in the way of raising the same sum in taxes."⁶

The experience in underdeveloped countries shows that these countries are unable to finance their development projects through tax revenues.⁷ It is, therefore, not surprising that they use deficit financing to secure the necessary resources for their development efforts. Many governments have come to believe that the choice is between inflation and underdevelopment and they prefer to pay for the social and political frictions that accompany inflation to the costs of retaining the status quo and price stability.⁸

W. Arthur Lewis discusses the effectiveness of this method for both underdeveloped and developed countries.

"The effect of inflation on capital formation depends on the purpose of the inflation. If the inflation is due to the government spending money on

paying high salaries to civil servants, or on making war, there is no reason to expect the inflation to increase capital formation . . . On the other hand, whether the country is underdeveloped or not, if the inflation is due to the government spending money on creating useful assets, such as irrigation system, the immediate effect will be an increase in these useful assets . . ."⁹

Keynes in the General Theory referred to deficit financing during the period of recession as a means of achieving full employment¹⁰ to remove the deflationary gap, i.e., unemployment gap. Deficits, according to the Keynesian analysis, lead to expansion of output on a scale that yields extra savings equal to the additional investment represented by the initial deficit.

In underdeveloped countries there are unemployed resources, especially labor. But its unemployment is due to the lack of complementary factors of production. Labor is unemployed because of bottlenecks such as shortage of capital and skills in the productive system.¹¹ In these countries an increase in effective demand will not increase output or will increase it very little, while its main effect will be a rise in prices. The additional money income created through government deficits will not, therefore, significantly produce greater savings to offset the inflationary impact of the expenditures financed through deficits.¹² It can not be denied that "budget deficits"¹³ if kept within certain limits, need not be inflationary. To the extent that it is financed by borrowing the genuine current savings of the people, for example, a budget deficit may not be inflationary.¹⁴

There are two arguments which are often advanced in favor of budget deficits even when they lead to an expansion of the monetary supply or to an activation of idle government balances:

(a) In underdeveloped countries, where investment habits are not fully developed, part of the current savings of the people is hoarded in the form of

local currency. If the government use of past cash balances or use of money newly created does not exceed the saving currently hoarded, no net inflationary pressure is released.

(b) Underdeveloped countries have large unemployed resources, especially of labor. The supply of goods and services would, therefore, readily respond to any extra purchasing power injected into the system by government deficits and there would be no actual inflation.¹⁵

R. Nurkse, in his book Problems of Capital Formation in Underdeveloped Countries, demonstrates the necessity of the utilization of disguised unemployed labor which exists in abundance in agriculture to produce capital goods. To avoid any rise in prices, he recommends that the consumption of goods by the population as a whole must be kept constant. The constant consumption of food is accomplished through taxation or direct controls.¹⁶

Following Professor Nurkse, it has become fashionable for less discerning observers than he to regard the underemployed workers of the underdeveloped countries as a huge reservoir easily tapped for the capital formation so urgently desired.¹⁷ The question before us is to what extent deficit financing is a feasible method for bringing these resources into use as a source of increasing total net production.

In many underdeveloped countries governments have tried to promote capital formation by making provision in their annual budgets for projects such as irrigation works, transportation, etc. Such projects are usually unsuitable for private enterprise despite being highly productive from the social point of view. A substantial part of this capital or developmental expenditures, however, is financed by means of budget deficits rather than from current tax receipts or from profits of government enterprises and the question is whether further development should not be financed in the same way?¹⁸

The reasons for this question are: First, marginal rate of savings and taxation in underdeveloped countries are often - but not necessarily and universally-very low due to their low level of income, the nature of tax system, the difficulties of effective tax administration, a high propensity to consume and so forth.¹⁹

Second, the marginal rate of savings and taxation may be particularly low where the increase in incomes associated with the act of deficit-financed public investment will be inclined partly in kind.²⁰

Singer in his discussion concludes that:

"If a combination of high multipliers, low elasticities of supply and resource immobility is typical of underdeveloped countries, it follows that deficit financing of public investment is particularly dangerous, at least until these three characteristics have been modified prior to, or simultaneously with the deficit-financed expenditure."²¹

The effects of inflation on investment decisions are, of course, not predictable. A lot will depend on the sales, rate of interest, and profit which in turn depends on the expectation set up in the mind of enterpreneurs.²² If expectations that prices will continue to rise for a long time into the future are held with considerable certainty, then this would seem to have a stimulating effect on the level of investment. This is because of the important economic fact that the real rate of interest will tend to be lower than when prices are stable.

Before discussing the impact of inflation on the incentives to invest and the nature of investment, one should note the extent to which income must be redistributed to achieve a desirable increase in the level of savings. The manner in which inflation is able to bring about a rise in saving is well

known. In some circumstances a "money illusion"²³ can be created so that even when individual money incomes are rising no more than in proportion to prices, a larger proportion of current money, and therefore, real income is saved.²⁴ But money illusion can hardly be relied on, except in the early stages of inflation and it quickly disappears once people realize that their real income is remaining unchanged. Essentially, if inflation successfully forces a higher level of savings, it must cause a shift in real income away from people who tend to save a small or negligible proportion of their incomes to people who tend to save a larger proportion.

So the amount of additional savings that can be obtained depends on the shift in real income that occurs and on the differential properties to spend of those who gain and those who lose income. If a general price rise does not cause wages to rise as much as other prices, the money income of those who receive profit will rise.²⁵ The money income of wage earners may rise some or remain the same, but their relative share in total money income will decline.

Even if the desired increase in real savings is achieved, these funds may not be channelled into uses most desirable from the point of view of the country attempting to increase real output. As is well known, a rising price level may encourage investments in inventories, gold, and foreign exchange.²⁶ Or it may encourage the purchase of land for speculation, prestige, or for the eventual construction of unnecessary buildings. What may not be encouraged is investment in factories, in land improvement, or in basic utilities such as roads, power, and profit facilities, which underdeveloped areas often lack.

Friedman puts it in this way:

" ... even if the revenue is used to promote development, it is used to promote development as viewed by the government, which means that the revenue

is likely to go for the standard development monuments, for international airlines, luxury hotels, steel mills, automobile assembly plants and the like, rather than productive investment."²⁷

W. Baer believes that under certain circumstances, which are close to the situation of many underdeveloped countries, inflation is inevitable and beneficial up to a certain limit.²⁸ In this way the creation of a new money contributes towards capital formation without promoting run-away inflation, and without seriously affecting people's confidence in money and in government bonds.²⁹

Baer especially points to the "... possibility of beneficial 'Schumpeterian'³⁰ effects which inflationary pressures might exert upon the development economy ..."³¹ He admitted that:

"... I was struck by the lack of emphasis on the distribution and allocation effects of the inflationary process."³²

W. A. Lewis accepts the Schumpeterian thesis when he states:

"... inflations which are used to create useful capital are self-destructive, in the sense that in due course, the new capital produces a new stream of consumer goods which either checks the rise in prices or even brings prices down."³³

B. The Statistical Evidence

There is no simple and self-evident cause between development on the one hand, and inflation, on the other, in either direction. Growth and inflation are interrelated but not in any simple way. In Latin America there are examples of growth and inflation (Brazil), stagnation and inflation (Argentina), growth and stability (pre - 1958 Venezuela), stagnation and stability (pre - 1958 Cuba).³⁴ Inflation can continue for decades without ever developing into a galloping inflation like the classic twentieth century inflations of Germany, Hungary, and China.³⁵

It is astonishing to find that almost all empirical studies conducted on the subject of inflation and development warn the reader that no valid conclusion can ever be reached. The reason why nothing can be expected from these studies is that economic development calls for constant changes in the form of production, in the economic and social structure and in patterns of income distribution.³⁶

With regard to the advanced countries, Rattan J. Bhatia's statistical study of the relation between rate of economic growth and rate of price changes, back to an earlier stage of economic history, is interesting. Bhatia examined the long-run record of the United Kingdom (1834-1912), Germany (1877-1911), Sweden (1870-1934), Canada (1890-1934), and Japan (1881-1936). For each country, except the United Kingdom, the period examined includes the years during which, according to Rostow, the country has its "take-off".³⁷ His conclusion was that no systematic relationship was established between price changes and rates of the profit share. Bhatia rejects the Rostow conclusion that the "take-off" process is assisted by inflation.³⁸

U Tum Wai reached the same conclusion after examining the relation between rate of inflation and economic development in 31 underdeveloped countries during the period of a rapid rise in prices from 1938-54. However when he examined countries which had experienced more than one significant rise in prices (Brazil, Chile, Honduras) he found that growth was higher when the rate of inflation was lower.³⁹

In a mixed sample of developed and underdeveloped countries between 1954 to 1960, Graemes Dorrance found that when monetary stability prevailed (prices rising by less than 5 percent), less developed countries enjoyed a 4 percent annual growth in output. During period of mild inflation (5-10 percent price

increase), the rate of growth of output was half as much. Finally, during strong inflation (more than 10 percent increase), the rate of output growth was less.⁴⁰ In his later study according to his inadequate data, however, he advocated that a limited inflation may facilitate progress.⁴¹ He admitted that it is impossible to ascertain the limit, which must be different from country to country. He found that declining prices appeared to be associated with low growth rates. Relatively slowly rising prices, particularly in advanced countries may have had a stimulating effect.⁴²

Dorrance in his study concludes that inflation, which is supported by observation, is likely to evoke forces which divert the resources available for domestic investment to an excessive accumulation of inventories and the building of houses for occupancy by the relatively wealthy, rather than to the construction of productive facilities or the provision of the housing for the major part of the community. M. Bailey comes to another conclusion. He states that housing is a good hedge against inflation or in less sophisticated term, the owners of a building do not care about the income it yields, because they make a big capital gain when its prices rises with the inflation. Moreover, certain amounts of bank loans are available for construction purposes, generally at rates of interest which in real terms are negative.⁴³ He admitted that the arguments supporting the notion that there is likely to be too much construction during an inflation have mostly been either inclusive or fallacious. Apartment building has no characteristics different from productive assets, nor is bank credit specifically tied to production. Furthermore rent controls that follow inflation are a reason against the hypothesis. The author also examined the experience of Chile for 1940-55 but he found no over-investment in building.⁴⁵

G. Lovasy found that between 1953-1959 the exports of countries with relatively mild inflation (prices rising by 5-10 percent) rose, on the average

by some 27 percent, against a 35 percent increase in those of stable countries. Export of countries with strong inflation (more than 10 percent increase), however, remained on the whole virtually unchanged. He concludes that therefore, inflation tends to hamper the expansion of exports and to retard the diversification. The initial effect arises from increased domestic demand, and from resulting rise in prices relative to those in competing or importing countries.⁴⁶

A. S. Shaalan found that the experience of Latin American countries during 1951-59 justified the hypothesis that in the short run investment in inventories rises. To test the hypothesis of misallocation of resources he employed the marginal output-capital ratio for Argentina, Chile, and Columbia. In Argentina and Chile, which experienced sharply rising prices, the ratio declined during the period covered, thus giving an indication of reduced efficiency. In Columbia it rose but inflation was mild.⁴⁷

W. Baer found that the evidence of Brazil did not show any drastic misallocation of resources directly attributable to inflation. And that distortion which did occur, especially in the public utility sector, were due mainly to institutional factors such as the method of price setting in the controlled sector of the economy.⁴⁸ This is due to the fact that inflation in Brazil is old and the business sector has learned to adjust to price changes. The author found no evidence that inflation biased investment in favor of short-fixed capital assets. On the basis of the evidence examined he refuted the hypothesis that inflation biases investment in favor of apartment buildings and private houses. Baer was convinced that inflation helped economic development in Brazil since wages lagged behind price increases.⁴⁹

Mario H. Simonsen rejects any positive correlation between inflation and development in Brazil. With referring to real average rate of growth of product

of Brazil as one of the highest rates in the world during the postwar years 1947-63, he admits all that has been proven is that development may coexist with prolonged inflation.⁵⁰ In fact, Brazil offered an interesting example of how inflationary distortions can be counter-balanced, though at the cost of regrettable sacrifice.

A scrutiny of the empirical studies on inflation reveals that little is actually known about its general effects and less about its impact on economic development. Apart from the fact that rapid inflation, which approaches the limits of hyper-inflation, is destructive for an economy; that rising prices reduce a temporary accumulation of inventories, that inflation subsidizes some groups while punishing money savers and people investing in fixed income bonds, nothing certain can be said about its effects. The main reason for this ignorance is the lack of critical statistical data. But until such data are available the heterogeneity of underdeveloped countries and the studies on them will prevent economists from arriving at general conclusions.

Footnotes

1. G. S. Dorrance, "The Effect of Inflation on Economic Development", International Monetary Funds, Staff Papers, Vol. X, No. 1, March 1963, p. 1.
2. Ibid., p. 2.
3. Forced-saving is involuntary saving by individuals. Forced-saving may take place in a full employment economy during inflation when new investment is undertaken and fewer consumer goods are available. This is especially possible when a government taxes its citizens and makes the funds available for investment.
4. P. Afxentiou, "Inflation as an Instrument of Economic Development", Economia Internazionale, Vol. XXIV, No. 1, February 1971, p. 2.
5. J. M. Keynes, A Tract on Monetary Reform (N. Y., First Harbinger Edition, 1964).
6. W. A. Lewis, The Theory of Economic Growth (London, George Allen and Unwin Ltd., 1955), p. 219.
7. A. K. Das Gupta and others, "Inflation and the Mobilization of Domestic Capital in Underdeveloped Countries of Asia", Economic Bulletin for Asia and the Far East, Vol. 11, No. 3, 1951, pp. 22-4.
8. Ibid., p. 21.
9. W. A. Lewis, op. cit., p. 405.
10. J. M. Keynes, The General Theory of Employment, Interest, and Money, (N. Y., First Harbinger Edition, 1964).
11. G. M. Meier, "Inflation", Leading Issues in Development Economics, (N. Y., Oxford University Press, 1964), pp. 174-76.
12. P. Afxentiou, op. cit., p. 4.
13. General speaking, the terms "budget deficit" refers to the excess of current expenditure over current receipts from taxation and from profit of government enterprises.
14. A. K. Das Gupta, op. cit., p. 21.
15. Ibid., pp. 21-2.
16. R. Nurkse, Problems of Capital Formation in Underdeveloped Countries, (N. Y. Oxford University Press, 1953), p. 36.

17. G. M. Meier, op. cit., p. 174.
18. A. K. Das Gupta, Economics Bulletin for Asia and Far East, op. cit., p. 21.
19. H. W. Singer, "Deficit Finance of Public Capital Formation", Social and Economic Studies, Sept. 1958, p. 92.
20. Ibid.
21. Ibid., p. 95.
22. G. Maynard, Economic Development and Price Level, (London, McMilan and Co., Ltd. 1963), p. 30.
23. "Money illusion" is the psychological valuation of currency without regards to its purchasing power. The money illusion arises when an individual associates money directly with its face value without considering its purchasing power.
24. G. Maynard, op. cit., p. 14.
25. S. H. Axilrod, "Inflation and Development of Underdeveloped Area", Review of Economics and Statistics, Vol. 36, No. , August, 1954, p. 335.
26. Ibid, pp. 336-7.
27. M. Friedman, Money and Economic Development (N. Y. Praeger Publishers Inc., 1973), p. 32.
28. W. Baer, "Inflation and Economic Growth, Economic Development and Cultural Changes, Vol. XI, No. 1, Oct. 1962, p. 87.
29. W. A. Lewis, op. cit., p. 224.
30. Schumpeter developed in the first decade of this century, The Theory of Economic Development. His theory is based on the enterprenur, a very unique and talented agent, who breaks the normal circular flow of stagnant economics through the introduction of new combinations. The entrepreneur accomplishes with help of the capitalist who provides him the credit required. The importance of credit is strongly emphasized by Schumpeter, who considers it as the special feature of a developing economus. The use of deficit financing is equivalent to credit granted to the entrepreneur but for development purpose. Schumpeter is one who offered the idea that development can only advance through inflation, (P. Afxentio, op. cit., p. 5).
31. W. Baer, op. cit., p. 86.
32. Ibid.
33. W. A. Lewis, op. cit., p. 224.

34. D. Seers, Oxford Economic Papers, Vol. 14, No. 2, June 1962, pp. 173-75.
35. Ibid.
36. R. Prebisch, "Economic Development for Monetary Stability: The False Dilemma", Economic Bulletin for Latin America, Vol. VI, No. 1, March 1961, pp. 1-25.
37. R. J. Bhatia, "Inflation, Deflation and Economic Development", International Monetary Funds, Staff Papers, Vol. VIII, No. 1, 1960, p. 101.
38. Ibid., p. 108.
39. U Tun Wai, "Relation Between Inflation and Economic Development", International Monetary Funds, Staff Papers, Vol. VII, No. 2, 1959, pp. 309-10.
40. G. S. Dorrance, "The Effect of Inflation on Economic Development", International Monetary Funds, Staff Papers, Vol. X, No. 1, March 1963, p. 22.
41. G. S. Dorrance, "Inflation and Growth, The Statistical Evidence", International Monetary Funds, Staff Papers, Vol. XIII, No. 1, March 1966, pp. 81-94.
42. Ibid., p. 94.
43. M. Bailey, "Construction and Inflation", Economic Development and Cultural Changes, Vol. X, No. 3, April 1962, p. 264.
44. Ibid., pp. 268-274.
45. Ibid.
46. G. Louasy, "Inflation and Exports in Primary Producing Countries", International Monetary Funds, Staff Papers, Vol. IX, No. 1, March 1962, pp. 37-40.
47. A. S. Shaalan, "The Impact of Inflation on the Composition of Private Domestic Investment", International Monetary Funds, Staff Papers, Vol. IX, No. 2, July 1962, pp. 225-8.
48. W. Baer, "Inflation and Economic Efficiency", Economic Development and Cultural Changes, Vol. XI, No. 4, July 1963, p. 405-6.
49. W. Baer, "Inflation and Economic Growth: An interpretation of the Brazilian Case", Economic Development and Cultural Changes, Vol. XI, No. 1, Oct. 1962, p. 87.
50. M. H. Simonsen, "Brazilian Inflation: Postwar Experience and Outcome of the 1964 Reforms", Economic Development Issue, Latin America, (N. Y. Frederick A. Praeger, Inc., 1967), pp. 307-15.

CHAPTER III

CAUSES OF INFLATION IN BRAZIL

Even to explain the monetary phenomenon such as inflation, it is sometimes necessary to follow the classical advice and lift up the monetary veil. It is impossible to understand fully the chronic inflation in Brazil, or any other underdeveloped country, if one attends only to the monetary ends of the system: be it the money supply or outlay, as in demand-inflation hypotheses, or the money price of labor (or other factors) as in cost-push inflation theories. To a significant degree the changes of such magnitudes have not been truly initiating factors.

They have not been autonomous in character, but induced by other economic variation. It is essential therefore to search beneath the monetary surface into the underlying region of physical flows, real prices, and sectional disequilibria.¹

This is why a relatively large literature of causes of inflation in Latin America has been generated by the debate between monetary economists and structural economists. The "monetarist" group has maintained that contractionary monetary and fiscal policies are the appropriate cure for inflation where inflation is caused by excess demand.² The structuralist group on the other hand, has maintained that inflation is not caused by anything as straight forward as excess demand but rather by structural imbalances.³ According to this second group inflation cannot be cured simply by determining and implementing the proper combination of monetary and fiscal policies.

On the other two hands, the more conservative adherents usually put the main emphasis on the structures of production and trade, since they are naturally less inclined to stress the need for social change.

It is my concern in this chapter to consider and examine the causes of inflation in Brazil from both points of view, i.e. structural causes and monetary causes of inflation.

Structural Causes of Inflation in Brazil

It is the contention of the structuralists that much of the increase in prices which occurs in an economy undergoing development is the result of autonomous pressures from the side of supply rather than an excess of aggregate demand for consumption and investment.⁴ The phrase "inelasticity of supply" is usually used to identify in a general way the source of these autonomous pressures.⁵ By this it is meant that output does not readily expand, nor does its composition adjust sufficiently fast, to meet a level of demand which is rising and changing its pattern at the same time.

A number of reasons for the existence of the alleged inelasticities cited in the structuralist literature are the chronic lagging in agriculture sector and the tendency for bottlenecks to develop in the infrastructure of the economy.⁶

It is my intention here to look at the views of structuralist group concerning the role played in import bottlenecks, import substitution, exchange depreciation, and supply elasticity of output both in agriculture and industry.

A - Import Bottlenecks and Inflation in Brazil:

Import bottlenecks are said to be the consequence of the widely discussed general tendency for the export earnings of underdeveloped, primary producing nations to be subject to various stagnating influences, which then make it very difficult to maintain the volume of imports commensurate with the needs of an economy seeking to promote development.⁷ An inflationary condition results

when the attempts are made despite the difficulties in the export sector, to maintain or expand the rate of domestic economic growth. This, in turn, is accompanied by the growth in the demand for import-type goods which exercises upward pressure on the domestic price level in two ways. First, primarily through the fostering of high-priced substitution programs; second, and also through the effect on raising import prices, results from the exchange depreciation, which may be expected in such a situation.⁸

Table 3 brings necessary data together which tends to support several aspects of the structuralist position for the Brazilian experience.

As the table indicates, export earnings, ignoring fluctuations, were subject to stagnating influences (mainly falling export prices beginning in the mid - 1950's and sluggish export quantum) and, consequently, were not as high at the end as at the beginning of the period. Since this coincided with a rapid expansion of the domestic economy, the result, as Table 3 also shows, was a persistent decline in the ratio of export earnings to real gross domestic products. While it is true that export earnings failed to keep pace with a growth in real gross product, an entirely different picture emerges when these earnings are adjusted to account for persistently falling import prices throughout the period (so called Purchasing Power of Exports).⁹ When these adjusted figures are expressed as a percentage of gross product, it is apparent that although the ratio fell after the mid 1950's, no decline for the period as a whole is observable. Thus it would appear that the purchasing power of Brazil's exports was able to keep pace with the country's internal economic development in spite of difficulties in the export sector.

B - Import Substitution and Inflation¹⁰

Although the performance of export purchasing power was relatively

Table 3
Trends in the Export Sector and Purchasing Power of Exports
(Brazil: 1947-61)

| Year | Export value ^a (U.S.\$) | Export unit value ^b (1949=100) | Export quantum (1949=100) | Export as % of real GDP | Unit value of imports ^b (1949=100) | Purchasing power of exports ^c (millions of U.S.\$) | Purchasing power of exports as % of real GDP ^c |
|------|---------------------------------------|--|------------------------------|----------------------------|---|---|--|
| 1947 | 1,131 | 96 | 109 | 11.2% | 115 | \$983. | 9.7% |
| 1948 | 1,180 | 96 | 111 | 10.6 | 116 | 1,017 | 9.2 |
| 1949 | 1,096 | 100 | 100 | 9.3 | 100 | 1,096 | 9.3 |
| 1950 | 1,355 | 143 | 87 | 11.0 | 81 | 1,673 | 13.6 |
| 1951 | 1,769 | 171 | 94 | 13.7 | 98 | 1,805 | 14.0 |
| 1952 | 1,418 | 169 | 77 | 10.4 | 100 | 1,418 | 10.4 |
| 1953 | 1,539 | 163 | 85 | 10.9 | 87 | 1,769 | 12.6 |
| 1954 | 1,562 | 191 | 74 | 10.3 | 76 | 2,055 | 13.6 |
| 1955 | 1,423 | 153 | 85 | 8.8 | 69 | 2,062 | 12.7 |
| 1956 | 1,482 | 146 | 93 | 9.0 | 69 | 2,148 | 13.0 |
| 1957 | 1,392 | 149 | 85 | 7.9 | 68 | 2,047 | 11.6 |
| 1958 | 1,243 | 137 | 82 | 6.6 | 61 | 2,038 | 10.8 |
| 1959 | 1,282 | 117 | 100 | 6.4 | 56 | 2,289 | 11.3 |
| 1960 | 1,269 | 114 | 101 | 5.9 | 60 | 2,115 | 9.8 |
| 1961 | 1,403 | 117 | 109 | 6.1 | 64 | 2,192 | 9.5 |

^amillions of U.S. dollars (f.o.b.).

^bindexes of unit value are, in effect, average price indexes.

^cthese findings were arrived at by dividing the yearly export value figures by the corresponding import unit value figure.

Source: A. R. Blair, Import Bottleneck and Inflation, Oxford Economic Papers, July 1967, pp.237-8.

satisfactory, Brazil nevertheless had to endure during the postwar years a condition of chronic balance of payments disequilibrium and a consequent persistent shortage of foreign exchange which made it necessary for the authorities to maintain very tight exchange and trade restrictions.¹¹ Balance of payments data, Table 4, for the years 1947-63 shows that although the country had a favorable balance of trade, it was easily offset by an excess of payments for services and remittances so that a substantial deficit on current account was registered. Thus given the chronic shortage of foreign exchange from the late 1940's onward, it is not surprising that the authorities of Brazil pursued trade and exchange policies designed to alter the structure of imports so as to foster additional industrialization as part of a program of import substitution.¹²

Morley and Smith noted that "During the postwar period, Brazil has embarked on a "growth strategy" based on the promotion of import substitution in certain key industries. It was an inward looking policy of high tariffs, special incentives for infant industries and foreign firms and direct government investment."¹³

A considerable body of evidence indicates that Brazil's import substitution included the whole range of industries, from simple consumer non durable to a relatively more sophisticated consumer durable and even capital goods.¹⁴ As a consequence, imports of manufactured goods as a proportion of total supply fell from .19 in 1949 to .04 in 1964 while capital goods above fell from .64 to .09 during the same period.¹⁵

While the overall import coefficient was lowered, the change in the composition of imports caused Brazil to become gradually more dependent on the remaining imports that were largely made up of raw materials, intermediate goods, and capital equipment. With the advance of the 1960's fewer and fewer opportunities

Table 4
Balance of Payments of Brazil 1947-65
(Million U. S. Dollars)

| | 1947-9 | 1950-4 | 1955-9 | 1960-3 | 1947-63 |
|------------------------------------|--------|--------|--------|--------|---------|
| A. Merchandise trade | | | | | |
| Export (FOB) | 3440 | 7642 | 6818 | 5293 | 23193 |
| Import (FOB) | -2879 | -6963 | -5819 | -5193 | -20744 |
| Trade Balance | 561 | 779 | 999 | 110 | 2449 |
| B. Other current transactions | -862 | -2047 | -1888 | -1558 | -6355 |
| C. Gifts | -34 | -25 | -48 | -17 | -124 |
| D. Total all current transactions | -335 | -1293 | -937 | -1465 | -4030 |
| E. Autonomous capital movement | -13 | 266 | 948 | 609 | 1810 |
| F. Errors and omissions | 68 | -14 | -387 | -167 | -500 |
| G. Surplus or deficit | -280 | -1041 | -376 | -1023 | -2720 |
| H. Supplier's credit | 144 | -141 | -8 | -198 | 192 |
| I. Official Compensatory financing | 138 | 1182 | 384 | 825 | 2528 |

Source: R. Kahil, Inflation and Economic Development in Brazil, (London, Oxford University Press Inc., 1973), p. 199.

for import substitution based growth of domestic industries were still open. The ratio of all imports to GNP fell from 16 percent in 1947-1949 to 9.5 percent in 1962-1964.¹⁶

It will be recalled that the structuralists believe that import substitution is in part responsible for the process of inflation in developing countries. Analysis of relative price patterns in Brazil between 1947-1961, according to Blair's study, however, does not support this contention. Because in light of the structuralists analysis, one would expect to find that prices rose most in those sectors which experienced the greatest rates of expansion, such as the industrial sector.

Blair in his study compares the relative output and prices of agriculture and industrial sectors (Table 5). He argues that no such clear-cut pattern is evident, and, for example, wholesale agricultural prices rose relatively to industrial product prices even though agricultural production declined markedly relative to industrial production.

Blair in his study also compares the relative prices of some industries which experience the greatest rate of import substitution industrialization (ISI) with the relative prices of agriculture. He refutes in his arguments the structural hypothesis that ISI is the primary cause of inflation at least for the postwar inflation in Brazil.

Although it is not quite sufficient to look at the relative prices of agriculture and industry to find out the effects of ISI on the price level, but one should look at the prices of each industry before and after ISI and then compare these two sets of prices. Some evidence indicates that even this kind of study may not be able to explain sufficiently the causes of inflation in Brazil and it is expected to be another explanation for it.

Table 5
Comparison of Relative Prices of Agricultural and
Industrial Productions (Brazil: 1947-61)
1950 = 100

| Year | Wholesale price index ^a | Agricultural prices ^a | Agricultural production ^b | Industrial products prices |
|------|---------------------------------------|-------------------------------------|---|-------------------------------|
| 1947 | 86 | 91 | 115 | 106 |
| 1948 | 92 | 101 | 113 | 101 |
| 1949 | 97 | 101 | 106 | 100 |
| 1950 | 100 | 100 | 100 | 100 |
| 1951 | 120 | 103 | 96 | 98 |
| 1952 | 136 | 106 | 91 | 94 |
| 1953 | 156 | 109 | 89 | 94 |
| 1954 | 197 | 102 | 92 | 99 |
| 1955 | 233 | 107 | 85 | 95 |
| 1956 | 284 | 105 | 84 | 96 |
| 1957 | 325 | 102 | 83 | 99 |
| 1958 | 372 | 99 | 70 | 101 |
| 1959 | 531 | 99 | 67 | 101 |
| 1960 | 698 | 106 | 61 | 95 |
| 1961 | 980 | 105 | 59 | 97 |

^aexcluding coffee; ^bRelative Agricultural production index is the ratio of Agricultural production index divided by industrial production index.

Source: A. R. Blair, "Import Bottlenecks and Inflation: the Case of Brazil," Oxford Economic Papers, Vol. 19, No. 2, July 1967, p. 243. The relative price indexes were derived by dividing the individual indexes by the wholesale price index (excluding coffee).

C - Exchange Depreciation and Inflation

One of the other structural causes of inflation is exchange depreciation. The structuralists hold that nations undergoing economic development must expect to experience continued exchange depreciation and, consequently, chronically rising import prices expressed in domestic currency.¹⁷

Exchange depreciation, like many of the other factors associated with inflation, is both a consequence and a contributing factor in the inflationary process. Once internal prices get substantially out of line external prices depreciation of the currency becomes necessary both to restore the incentive to export and to encourage production of domestic goods in competition with low-priced imports.

Exchange depreciation may contribute to inflation in several ways. First it raises internal prices of international goods. High import prices have direct effect on the price level, but there is also an indirect effect which may be greater. The indirect effect arises from the demand for higher wages in response to the increase in cost of living and also, from the increase in the supply of money which may result from a combination of large governmental expenditures and an expansion a bank credit to the private sector.¹⁸

The expectation of a devaluation will also release inflationary forces in the form of speculative buying of commodities whose prices are expected to rise. It should be mentioned after devaluation has occurred there may be a reversal of the speculative forces.¹⁹

On Brazil's case, the fixed exchange rate was maintained until 1953 despite a serious shortage of foreign exchange.²⁰ As a result, the index of cruzeiro import prices did not rise between 1947-1953, but at the same time domestic wholesale prices were rising by 80% so that relative import prices fell substantially during the immediate postwar years 1947-1961 (see Table 6).

After 1953, with the adoption of multiple exchange rate system and periodic increases in the average cruzeiro prices for foreign exchange, this downward trend in relative import prices was brought to a halt, but rising import prices did not cut the pace of the overall increase.²¹

Table 6
Relative Import Prices (Brazil: 1947 - 1961)
(1953 = 100)

| Year | Relative Import Price | Year | Relative Import Price |
|------|-----------------------|------|-----------------------|
| 1947 | 192 | 1955 | 101 |
| 1948 | 180 | 1956 | 100 |
| 1949 | 141 | 1957 | 85 |
| 1950 | 100 | 1958 | 89 |
| 1951 | 100 | 1959 | 92 |
| 1952 | 94 | 1960 | 78 |
| 1953 | 72 | 1961 | 88 |
| 1954 | 87 | | |

Source: R. Blair, "Import Bottleneck and Inflation: the Case of Brazil", Oxford Economic Papers, Vol. 19, No. 2, July 1967, p. 245. The relative index was derived by dividing the import price index by the wholesale price index.

It should be recalled that the structuralists hold that the exchange depreciation is an unavoidable practice of the nations undergoing economic development and therefore they should expect chronically rising import and domestic prices. This hypothesis although may be consistent with the economic conditions of many underdeveloped countries, but due to Brazilian data it is

not. Moreover it is not able to explain the rate of inflation in Brazil especially at the early stages of inflation.

D - Industrial Sector and the Rate of Inflation:

The main arguments of the "structuralists" is, as I mentioned already, that inflation is the result of economic development which causes structural transformation in the economic system.

The only "structural" feature that may in fact contribute to inflation in the underdeveloped countries is their inelasticity of supply.²² In developed countries, industry does not normally operate at 100 percent of capacity. The economic system can therefore respond to the inflationary impact of additional demand by its industrial output. In the underdeveloped countries, however, due to scarcity of skilled labor, capital scarcity and normal full employment, appreciable spare capacity is not available in the industry. In fact in these countries any effort of increasing the supply of industrial output and composition of output is hampered by the bottleneck limitation and infrastructure of the economy.

In the case of postwar development of Brazil there is no evidence of such kind of bottleneck. The postwar years, especially from 1950, mark the most intensive industrial development of the Brazilian economy. The index of national products (in real term) rose from 100 in 1949 to 217 in 1964; the index of industrial production rose to 366 and that of total agricultural production to 179.²³

In Table 7 the rate of growth of Brazil's manufacturing is shown and it is permissible to claim that Brazil had a substantial and persistent, except for 1963, rate of growth in industry during the period under study.

Table 7
Rate of Growth of Brazil's Manufacturing

| 1949 | 1953 | 1955 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 |
|------|------|------|------|------|------|------|------|------|------|------|
| 11 | 9.3 | 8.3 | 5.6 | 10.7 | 12.8 | 10.6 | 11.1 | 8.2 | -.3 | 5.1 |

Source: W. Baer and Isaac Kerstenetzky, "The Brazilian Economy", Brazil in the Sixties (Missouri, Western Publishing Co., 1972, Ed., R. Roett) p. 140.

By inelasticity of supply structuralists mean that the output does not readily expand, nor does its composition adjust sufficiently fast, to meet the level of demand which is rising and changing its pattern at the same time. So we should look also at the structure of domestic production during the time of study (Table 8).

Table 8
Structure of Domestic Production of Industrial Products
(Billion of cr. of 1955)

| | Consumer Goods | | Producer Goods | | All industrial goods |
|------|----------------|------------|----------------|---------|----------------------|
| | Durable | Nondurable | Intermediate | Capital | |
| 1949 | 4.9 | 140.0 | 52.1 | 9. | 206.0 |
| 1955 | 19.0 | 200.9 | 104.0 | 18.0 | 341.9 |
| 1959 | 43.1 | 258.0 | 159.6 | 59.5 | 520.2 |
| 1964 | 93.8 | 319.5 | 261.2 | 79.7 | 754.2 |

Source: J. Bergsman and A. Cindal, "Industrialization: Past Success and Future Problems," The Economy of Brazil (California, University of California Press, Ed. Ellis, 1969), p. 45.

E - Agricultural Output, Population, and Real Income:

In this section I will try to show whether agricultural sector was itself responsible for generating inflationary pressures, or whether it simply failed to play the counter inflationary role of which it was capable. In order to answer this question I compare the rate of growth of agricultural output with the growth rate of major determinants of demand during the time of study to find out if agricultural output lagged behind the demand and if so to what extent.

Agricultural sector's output grew at a much slower pace than industry, transport, and commerce. But this lag must not be taken to mean that it was unduly rigid. This is the logical result of the import substitution of industrialization and other policies which we expect industry should grow faster. The agricultural sector can be said to constitute a serious bottleneck only if its output fails to grow in line with the specific demand for agricultural products which is itself only partly determined by the growth of the other sector of the economy.²⁴

The most important factor in Brazil which is responsible for the increased demand for agricultural output is the growth of population. Between 1947 and 1963, the average yearly growth rate of population was 2.9 per cent which adds 28 million people on the Brazilian scene during the period. Agriculture more than met this test. It grew at an average yearly rate of about 4.4 per cent, as compared with 2.9 per cent increase in population, thus exceeding it by about 1.4 per cent per annum (see Table 9), and so permitting a rise in per capita consumption of agricultural goods of about 26 per cent from 1947 to 1963.²⁵

The demand for foodstuff (and agricultural raw materials) does not, however, increase solely as a result of the growth of population. It can be expected

Table 9
Brazil: Index of Real Product of Agriculture 1947-1963
(1949 = 100)

| 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 89.5 | 95.7 | 100 | 101.5 | 102.2 | 111.7 | 120.5 | 129.8 | 126.7 |
| 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | |
| 126.7 | 138.5 | 141.3 | 148.8 | 156.1 | 167.9 | 177.1 | 178.9 | |

Source: R. Kahil, Inflation and Economic Development in Brazil, (London, Oxford University Press Inc., 1973), p. 336.

to increase also, particularly in the developing economy, as a result of increase in per capita real income. Brazil's GDP increased by some 178 percent between 1947-1963 (from 87.3 to 242.5; 1949=100) that is by about 6.6 percent per annum. This gives us a per capita average yearly increase in GDP of less than 3.6 percent and consequently a yearly increase in per capita demand for food of less than 1.8 percent (in Brazil, the elasticity of demand for foodstuff estimated 0.44) while its per capita supply was increasing at the average of 1.75 percent per annum.²⁶ Even if we compare the average yearly growth rate of the supply of foodstuffs (1.75) with real income or real disposable income, which increased by 3.8 percent per annum and a yearly per capita increase in the demand for foodstuffs (below 1.9), the difference is not significant (see Table 10).

F - Urbanization and Inflation:

The mere growth of towns and cities is regarded by a number of structuralists as an independent source of inflationary pressures. Urbanization, they

Table 10
Yearly Percentage of Change in Real Income and in Production
and Prices of Foodstuffs, 1945-63

| Year | Production | Real Income | Prices | |
|------|------------|-------------|-----------|--------|
| | | | Wholesale | Retail |
| 1945 | 1.5 | 4.1 | 23.9 | 25. |
| 1946 | 10.3 | 8.0 | 7.8 | 20. |
| 1947 | 1.3 | 3.8 | 18.5 | 23.8 |
| 1948 | 9.2 | 6.8 | 19.9 | 5.8 |
| 1949 | 3.6 | 7.2 | 5.4 | 5.5 |
| 1950 | 7. | 11.4 | -3.4 | 8.6 |
| 1951 | 1.1 | 5.9 | 13.0 | 12.7 |
| 1952 | 2.2 | 6.5 | 31.1 | 19.7 |
| 1953 | 5.3 | 2.9 | 18.7 | 17.6 |
| 1954 | 8. | 11.4 | 15.8 | 21. |
| 1955 | 3.7 | 5.2 | 22.5 | 24.8 |
| 1956 | 4.5 | 3.4 | 20.9 | 23.8 |
| 1957 | 6.8 | 7.8 | 13.8 | 15. |
| 1958 | .0 | 7.2 | 8.1 | 14.4 |
| 1959 | 4.0 | 5.6 | 42.8 | 45.1 |
| 1960 | 6.2 | 9.2 | 36.6 | 30.5 |
| 1961 | 4.3 | 10.2 | 36.4 | 34.6 |
| 1962 | 5.6 | 4.8 | 60.9 | 61.9 |
| 1963 | 4.6 | 1.6 | 70.5 | 65.5 |

Source: R. Kahil, Inflation and Economic Development in Brazil (London, Oxford University Press Inc., 1973), p. 47.

say, induces prices to rise by acting upon them both from the side of private and public demand, and from that supply through an increase in costs.²⁷ They claim that urbanization implies a fast expansion, and changed pattern of, demand. Migrants into the towns demand more and better food and clothing, the supply of which cannot be easily increased. They also develop new taste for a variety of consumer goods including durables, and require additional houses, electricity, transport, and other public services.

Thus, the rapid expansion of private and public consumption expenditure will induce the emergence of inflationary pressures, owing to the inelastic supply of agricultural output, increasing balance of payments deficit, costly import substitution and rising government deficit. The inflationary process thus happens through both increases in private consumption expenditure and public consumption expenditure.

Any increase in private consumption expenditure in the case of urbanization is expected to be through increases in wage rates. Since the wage rates for the migrants could not be far below the current wage in towns, even if migrants are willing to work in towns for any wage (they will not be permitted to do so owing to the resistance of trade unions), so that the wage level will probably remain unaffected in the towns. At the same time there is a pressure to raise the wage rate in the rural area as a consequence of the decline in the supply of agricultural labor. Thus an upward pressure on the demand for wage goods, and hence on the price, is likely to be exerted by the combination of rising per capita wage in the country and expansion of employment in the towns at the prevailing higher wage.

In the Brazilian case, however, no significant rise in the level of wages is likely to have occurred in the agricultural sector as a consequence of

urbanization.²⁸ And the drift of Brazilian workers to the city is in the main due to adverse factors which have their origin in the country side, rather than to the attraction of urban wages or even city life. Let us consider whether the migration to towns by masses of farm laborers tends to raise their purchasing power. Prior to 1954, the wage differential between towns and rural areas was insignificant.²⁹ From 1954 the adjustment of urban minimum wages by the government had the effect of widening the margin between the lowest category of workers in agriculture and in industry.

It is important to note each time the government raise the wages artificially, the subsequent rise in the price of agricultural and industrial products, due to the increasing demand of urban labor for this product tended to swallow up part of the rise in urban wages (see Table 11). Although it is conceivable in theory that the movement of workers from the rural to the urban area and more particularly from the poorer to the richer states, may tend to raise the general wage level, according to the Kahil study it is unlikely in Brazil's postwar circumstances that it should have had an independent effect in increasing appreciably the total wage bill or that it should significantly expand the pattern of demand for food, clothing, or other consumer goods.³⁰

As I have mentioned already, when the urban population increases, municipal and state authorities have to supply the growing cities with additional public services. New streets are paved, the sewer system is extended, the more electricity, water, schools and hospitals, have to be provided. All these needs are a heavy drain on finance. The local or federal authorities have to finance these additional public services either through imposing special contributions on employers or by assuming for themselves the additional expenditure required out of their rising tax receipts, or, if this fails, through budgetary deficits.

Table 11
Annual Changes in Wage Index

| Years | Changes in Money Wages | Changes in Real Wages |
|-------|------------------------|-----------------------|
| 1951 | n.a. | n.a. |
| 1952 | n.a. | n.a. |
| 1953 | 0 | -14 |
| 1954 | 59 | 30 |
| 1955 | 27 | 3 |
| 1956 | 24 | 3 |
| 1957 | 28 | 9 |
| 1958 | 10 | -4 |
| 1959 | 43 | 3 |
| 1960 | 10 | -15 |
| 1961 | 54 | 16 |
| 1962 | 31 | -14 |
| 1963 | 58 | -7 |
| 1964 | 82 | -5 |

n.a.: Not Available

Source: F. Pazos, Chronic Inflation in Latin America, (N. Y. Praeger Publishers, 1972) p. 64.

Kahil indicates there is not a strong relation between urbanization and the budget deficit. "The rapid growth of Brazil's cities," according to him "can in no way be held, directly or indirectly, responsible for the increasing budgetary deficit."³¹

The only part of our discussion which is left is the relation between urbanization and marketing costs which could consider as a cause of inflation. Urbanization may have influenced marketing cost by operating from the side of supply through an increase cost. As cities expanded the problem of supplying them with agricultural goods increases in complexity; longer distance must be covered to bring food stuffs and agricultural raw materials, and producers and consumers are not in direct contact and wholesalers, retailers are now emerged, i.e., middlemen. The price of agricultural products can therefore be expected to rise so as to cover the higher transportation cost and the profits of middlemen.

To examine this relation let us compare the price of agricultural goods obtained by producers over the period 1948-1963 (years of rapid urbanization), with the price charged in turn by the wholesaler and retailer in the state of Sao-Paulo in order to find out whether the gap tended to widen between the price which the final consumer had to pay and the original price set in the first place by the producer of these goods (see Table 12).

Let us examine the figures in Table 12 (a) and (b). In the case of (a) all the agricultural commodities have exactly the same weight and in case (b) considerable weight is given to export crops.³² It is difficult to speak of a clear trend, except perhaps in the case of the (a) set of figures, which shows wholesale and retail prices to have risen in the second half of the period at slightly slower pace than producer prices.

One would expect that during the process of urbanization retail prices would rise faster than wholesale prices, and that both would increase more rapidly than producer prices. And moreover the price of export products rose moderately.³³ The views that urban consumers are forced to pay an increasing

Table 12

Variations in Agricultural Prices in the State of Sao Paulo, 1948-63

(Index: 1948 = 100)

| | (a) All Agricultural Commodities | | | | | | (b) Foodstuffs | | | | | | | | |
|------|-------------------------------------|------------------|-------|------------------|------------------|----|-------------------|------------------|-------|-----------------|------------------|--|---------------|------------------|--|
| | Producer Prices | | | Wholesale Prices | | | Retail Prices | | | Producer Prices | | | Retail Prices | | |
| | Index | Yearly change | | Index | Yearly change | | Index | Yearly change | | Index | Yearly change | | Index | Yearly change | |
| 1948 | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | |
| 1949 | 116 | 16 | 111 | 11 | 107 | 7 | 103 | 3 | 96 | -4 | | | 96 | | |
| 1950 | 151 | 30 | 151 | 36 | 151 | 41 | 100 | -3 | 102 | 6 | | | 102 | | |
| 1951 | 160 | 6 | 164 | 9 | 165 | 9 | 114 | 14 | 108 | 6 | | | 108 | | |
| 1952 | 179 | 12 | 179 | 9 | 191 | 15 | 151 | 33 | 140 | 30 | | | 140 | | |
| 1953 | 232 | 23 | 189 | 5 | 232 | 22 | 200 | 32 | 189 | 35 | | | 189 | | |
| 1954 | 237 | 45 | 323 | 71 | 337 | 45 | 216 | 8 | 225 | 19 | | | 225 | | |
| 1955 | 365 | 8 | 343 | 6 | 361 | 7 | 274 | 27 | 266 | 18 | | | 266 | | |
| 1956 | 412 | 13 | 377 | 10 | 391 | 8 | 308 | 12 | 330 | 24 | | | 330 | | |
| 1957 | 442 | 7 | 385 | 2 | 416 | 7 | 342 | 11 | 368 | 11 | | | 368 | | |
| 1958 | 416 | -6 | 430 | 12 | 430 | 3 | 399 | 17 | 413 | 12 | | | 413 | | |
| 1959 | 498 | 20 | 525 | 22 | 479 | 11 | 553 | 39 | 596 | 44 | | | 596 | | |
| 1960 | 586 | 18 | 619 | 18 | 570 | 19 | 751 | 36 | 860 | 44 | | | 860 | | |
| 1961 | 800 | 37 | 849 | 37 | 712 | 25 | 1,057 | 41 | 1,159 | 35 | | | 1,159 | | |
| 1962 | 1,463 | 83 | 1,326 | 56 | 1,212 | 70 | 1,847 | 75 | 1,830 | 58 | | | 1,830 | | |
| 1963 | 2,256 | 54 | 2,062 | 55 | 1,935 | 60 | | | 3,011 | 66 | | | 3,011 | | |

Source: R. Kahil, Inflation and Economic Development in Brazil, (London, Oxford University Press, 1973), p. 122.

price for the marketing of agricultural goods is not supported by the figures in either (a) or (b) in Table 12, where no trend can be discerned.

Monetarist Approach to Causes of Inflation in Brazil

Detailed examination of the postwar data leads us to conclude, however, that the structural weaknesses of the economy can not have played a significant role in the evolution of the price level from 1947 to 1964 and that the aggravation of structural weaknesses towards the end of the period was more an effect than a cause of the acceleration of inflation.

The immediate causes of the persistent and often violent rise in prices, with which Brazil was plagued from the last months of 1947 to the early months of 1964, are large and generally growing public deficits, together with too rapid an expansion of bank credit in the first years and, later, exaggerated and more frequent increases in the legal minimum wages.³⁴

A-Expansion of Credit and Inflation

To understand the ultimate causes of the inflationary process we must therefore concentrate attention on its early stages, when budget deficits, credit expansion, and minimum wage increase were not yet closely interrelated but possessed a large measure of autonomy. For it is only thus that we can consider and discover the factors lying behind these immediate causes of inflation and which, by determining them, generated the whole process.

In the postwar inflation of Brazil from the end of the war up to 1952 inflation was the result mainly of increase private investment which in turn resulted from expansion of credit.³⁵ In expanding loans to the government, to the private sector, and to commercial banks, the monetary authorities were forced to launch new money into circulation.³⁶ This paper money later turned

Table 13
Bank Loans to the Private Sector
(in NCr\$)

| Year end | Loans to private sector | Wholesale price index (1953 = 100) | Loans in real terms (NCr\$ of 1953) |
|----------|-------------------------|------------------------------------|-------------------------------------|
| 1951 | 85.647 | 83.5 | 103.815 |
| 1952 | 102.279 | 90.4 | 104.898 |
| 1953 | 120.360 | 113.2 | 106.325 |
| 1954 | 152.194 | 140.3 | 108.478 |
| 1955 | 171.405 | 153.5 | 111.664 |
| 1956 | 205.449 | 192.9 | 106.505 |
| 1957 | 254.509 | 199.4 | 127.637 |
| 1958 | 311.577 | 255.0 | 122.187 |
| 1959 | 400.839 | 347.1 | 115.488 |
| 1960 | 565.044 | 460.8 | 112.622 |
| 1961 | 781.422 | 691.6 | 112.988 |
| 1962 | 1,254.472 | 1,037.0 | 120.971 |
| 1963 | 1,945.848 | 1,886.0 | 103.173 |
| 1964 | 3,666.592 | 3,556.2 | 103.104 |

Source: E. Gudin, "The Chief Characteristic of the Postwar Economic Development of Brazil," The Economy of Brazil, (California, University of California Press, Ed. H. Ellis, 1969), p. 24.

to the commercial banks as a result of public deposits. The bank holding excess cash, increased their loan.

Credit to the private sector at first rose more than the public sector. In fact bank credit in real terms remained particularly stationary from 1952 to 1964 (see Table 13).

The result of the expansion of credit to private and public sector from 1947 to 1964 is an increase in investment, that is, capital formation. And its direct effects on increase the supply of goods and services resulted from these investments (see Table 14).

Table 14

Fixed Capital Formation (Percent of Total Capital Formation)

| Year | Public Sector | Private Sector |
|------|---------------|----------------|
| 1947 | 15.8 | 84.2 |
| 1952 | 26.8 | 73.2 |
| 1957 | 37.0 | 63.0 |
| 1960 | 38.4 | 61.6 |
| 1964 | 34.8 | 65.2 |

Source: E. Gudine, "The Chief Characteristic of the Economic Development of Brazil," The Economy of Brazil, (California, University of California Press, Ed. H. Ellis, 1969), p. 24.

Table 14 shows public and private sectors, share in fixed capital formation. The private share fell from 84.2 percent to 65.2 percent from 1947 to 1964, while that the public sector grew from 15.8 percent to 34.8 percent during this time. During this time the real GDP increase 29% and rose from 200.7 milliard Cruzeiros (of 1949) to 259.3 milliard Cruzerios (of 1949). On the

other hand the bank loans to private and public sector increased by roughly 650 percent.³⁷

B-Government Expenditure Behavior

One of the main causes of Brazilian inflation has been the violent pressure of the federal government's deficits on the monetary system. The lack of a market for public debt securities until 1964 caused these deficits to be covered almost completely by the expansion of Banco do Brasil's loan to the national treasury.³⁸

The expansion of credit to the private sector even in the early stages of postwar inflation in Brazil was accompanied by an expansion of government expenditure and budget deficit. Federal government receipts and expenditure constitute only about half of the total receipts and expenditures of all three levels of government the other half being the responsibility of states and municipal government.³⁹

It is the purpose of this section to examine major forces which are likely to have generated inflationary pressure, namely, changes in the expenditure of federal government in relation to its current receipts. It's particular interesting to note that although the federal government may enjoy a balanced budget, the three levels of government as a whole may not (see Table 15).

Table 14 shows that unfortunately any effort of federal government on stabilizing the budget was more than offset by a fairly substantial deficit in the budgets of states and municipal which resulted in an overall deficit in the finances of all three levels of government of roughly 1.1 milliard cruzeiros in 1947 and 1.3 milliard cruzeiros in 1948.

The Federal Government seldom had recourse in postwar years to the sale of public bonds to the private sector, but generally covered the bulk of its

Table 15

Receipts and Expenditure of the Federal Government and Overall

Deficit or Surplus of Federal, State, and Local

Government, 1944-48 (Million Cruzeiros)

| Years | Federal Government | | Surplus or deficit | Three levels of government surplus or deficit |
|-------|--------------------|--------------|--------------------|---|
| | Receipt | Expenditures | | |
| 1944 | 8311 | 8399 | -088 | 171 |
| 1945 | 9845 | 10839 | -994 | -1810 |
| 1946 | 11570 | 14203 | -2633 | -3037 |
| 1947 | 13853 | 13393 | +460 | -1100 |
| 1948 | 15699 | 15696 | +003 | -1256 |

Source: R. Kahl, Inflation and Economic Development in Brazil (London, Oxford University Press, 1973), p. 251.

Table 16
Bank Credit to the Public Sector and Consumer Prices
(annual increase) 1949-64

| Year | Borrowing of the Public Sector as % of GDP | Cost of Living Index |
|------|---|----------------------|
| 1949 | 1.7 | 5.0 |
| 1950 | 2.9 | 9.2 |
| 1951 | .6 | 12.0 |
| 1952 | 1.8 | 17.3 |
| 1953 | 2.3 | 14.4 |
| 1954 | 1.9 | 22.4 |
| 1955 | 1.1 | 23.1 |
| 1956 | 2.6 | 20.9 |
| 1957 | 3.5 | 16.3 |
| 1958 | 2.0 | 14.6 |
| 1959 | 2.9 | 39.0 |
| 1960 | 3.9 | 29.4 |
| 1961 | 6.2 | 33.3 |
| 1962 | 4.2 | 51.7 |
| 1963 | 4.9 | 70.4 |
| 1964 | 6.3 | 91.4 |

Source: F. Pazos, Chronic Inflation in Latin America (N. Y., Praeger Publishers Inc., 1972), p. 96.

deficit by borrowing from the Banco do Brasil to which the required funds always ready supplied by the issue of currency.

This borrowing by the public sector continued as the last resort for the financing of government expenditures. In Table 16 the data gathered to show how the borrowing of the public sector grew, in terms of GDP, from 1949 to 1964.

The deficit in budgets of federal government rose from 0.5 millions of cruzeiros in 1947 to 760.0 millions of cruzeiros in 1964.⁴⁰ In relative term the deficit as a percentage of GDP also increased significantly during the period under study (see Table 17).

Table 17
Deficit of the Federal Government as Percentage of GDP
(1947-64)

| Year | Deficit | Year | Deficit |
|-------------|---------|------|---------|
| 1947 | (0.3) | 1956 | 2.2 |
| 1948 | - | 1957 | 3.9 |
| 1949 | 1.3 | 1948 | 2.2 |
| 1950 | 1.7 | 1959 | 3.0 |
| 1951 | (0.9) | 1960 | 3.3 |
| 1952 | (0.7) | 1961 | 3.7 |
| 1953 | 0.7 | 1962 | 5.0 |
| 1954 | 0.7 | 1963 | 5.1 |
| 1955 | 0.8 | 1964 | 4.0 |
| () surplus | | | |

Source: M. Simonsen, *Brazilian Inflation Postwar Experience and Outcome of the 1964 Reforms*, Economic Development Issue: Latin American (N. Y., Frederick A. Praeger, Inc., 1967), p. 283.

Table 17 shows the deficit of the federal government as a percentage of gross domestic product from 1947 through 1964. Until 1955, existing deficits seldom reached 1 percent of GDP, and in the three of these years these were actual surpluses. This means that until 1955 the federal government was not the main cause of inflationary pressures.

In fact, as I mentioned already, the monetary expansion at the early stages of inflation, derived to a greater extent from the expansion of loans by the banking system to the private sector and government corporations. Starting from the mid 1950's, however, the federal government became the main force behind inflation. In 1955, the cash deficit was only 0.8 percent of GDP; it rose to 2.2 percent in 1956 and reached 5.1 percent in 1963.

The reason for the rapid real growth of the federal deficit is to be found increased expenditure; it averaged nine percent of GDP in the ten years period from 1945 to 1955 but rose to 14.6 percent in 1963. Public revenue increased slightly as a percentage of GDP (from 8.4% in 1947 rose to 10.7% in 1964). But in view of the successive revisions of tax legislation, revenue in no way managed to keep up with the expenditure increases.⁴¹

Given the high propensity to consume of the Brazilian population,⁴² we should expect the multiplier effects on monetary incomes of this combination of large budget deficits and expansion of credits and loans to have been considerable.

The demand for money in turn during 1947 to 1964 increased significantly, as it is shown in Table 18. The aggregate monetary demand increase from 22.4 milliards of cruzeiros in 1948 to 4043 in 1963, roughly, 100 percent average increase per year.

Table 18

(AMD) Aggregate Monetary Demand (Milliard Cruzeiros) 1948-63

| Year | A.M.D. | Year | A.M.D. |
|------|--------|------|--------|
| 1948 | 22.4 | 1956 | 152.4 |
| 1949 | 28.7 | 1957 | 212.1 |
| 1950 | 37.7 | 1958 | 253.5 |
| 1951 | 52.7 | 1959 | 478.9 |
| 1952 | 44.7 | 1960 | 596.7 |
| 1953 | 78.5 | 1961 | 1136.4 |
| 1954 | 126.4 | 1962 | 1897.3 |
| 1955 | 136.5 | 1963 | 4032.0 |

Source: R. Kahil, Inflation and Economic Development in Brazil, (London, Oxford University Press, 1973), p. 269.

C-Wages and Inflation

Brazil's experience fits the normal pattern of the inflationary process. On the demand side the continued rise in prices has been forced by expansion of bank credit to companies and federal government deficits financed through expanded loans from the monetary authorities. These have been the main causes of the increase in money supply. On the cost side, prices have been pushed upward by the frequent wage adjustments granted by the government and carried beyond the levels that would normally be paid by the market. In other words institutional variables rather than market forces have pushed wages.

The institutional pressure on wages was not as strong in the year immediately following World War II as it later became. The turning point probably is at July, 1954, when the monthly minimum wage was doubled (see Table 19).

Table 19
Minimum Wage (State of Guanabara)

| Date of readjustment | Minimum wage (Ncr\$ per month) | Increase as percent of pervious wage | Increase (percent) in cost of living since previous readjustment |
|----------------------|--------------------------------|--------------------------------------|--|
| Jan. 1952 | 1.20 | - | - |
| July 1954 | 2.40 | 100.0 | 54.4 |
| Aug. 1956 | 3.80 | 58.3 | 51.4 |
| Jan. 1959 | 6.00 | 57.9 | 47.8 |
| Oct. 1960 | 9.60 | 60.0 | 70.0 |
| Oct. 1961 | 13.44 | 40.0 | 42.2 |
| Jan. 1963 | 21.00 | 56.3 | 67.1 |
| Feb. 1964 | 42.00 | 100.0 | 109.5 |

Source: E. Gudin, "The Chief Characteristic of the Postwar Economic Development of Brazil," The Economy of Brazil (California, California University Press, 1969, Ed. Ellis), p. 16.

A close look at the changes in minimum legal wages, its process, and cost of living indicates that prices are by far the most important factor in the determination of wage movements. Real wages rose vertically when contracts were renewed. Then they declined gradually thereafter during the twelve months period. So because of annual duration of contracts, wages do not immediately react to inflationary pressures but accumulate their responses during a whole year and release them all at once at the date of contract renewal.⁴³ So when prices increase substantially during the latter months of a labor contract, wages are not readjusted according to the actual rise in prices since the previous adjustment but to their rate in the months preceding labor negotiations.

Therefore it seems reasonable to conclude that increase in wage rates lagged behind raises in the cost of living and are by-products of the inflationary process at least of galloping inflation in the late 1950's and early 1960's. Gudín agrees with this result when he states that "It may also be said of wages that they rose with the increases in cost of living resulting from federal deficit."⁴⁴

D-Supply of Money and Inflation:

The economic indicator which is most closely correlated with the rate of inflation in most Latin American countries is the rate of increase in the supply of money. This applies particularly to countries with high rate of inflation such as Brazil.

In fact any increase in money supply in less developed countries increases aggregate demand which cannot be satisfied with output and import (the elasticity of supply for both of them is close to zero).

The relation between the rate of inflation and the increase in the money supply is made clear in Table 20, which shows the increase in gross domestic expenditure at market prices, the money supply, and the income velocity.

Apart from the over-all tendency toward a gradual increase in the income velocity of currency, there were short term fluctuations during certain years covered in the table. In general these fluctuations resulted from pressures brought about by monetary policy.⁴⁵ So the seeming conformity of the Brazilian experience to the classical theory of money could be misleading. Especially it would be wrong to assume that a successful stabilization program can be achieved solely on constricting the means of payments.

An econometric study has been done by Pazos to explain the changes in price level and the money supply in Brazil between 1948 to 1970. He found a relatively

Table 20
Income - Velocity of Money

| Year | A:Gross Domestic Expenditure (Billions of Cruzeiros) | B:Money Supply Billions of Cruzeiros | $\frac{A}{B}$:Income Velocity of Currency |
|------|---|---|---|
| 1947 | 164.4 | 47.7 | 3.4 |
| 1948 | 187.0 | 47.7 | 3.9 |
| 1949 | 215.5 | 53.9 | 4.0 |
| 1950 | 253.5 | 66.8 | 3.8 |
| 1951 | 306.3 | 84.4 | 3.6 |
| 1952 | 351.1 | 94.9 | 3.7 |
| 1953 | 429.4 | 112.6 | 3.8 |
| 1954 | 552.2 | 136.9 | 4.1 |
| 1955 | 691.7 | 162.7 | 4.3 |
| 1956 | 884.4 | 196.6 | 4.5 |
| 1957 | 1056.5 | 243.3 | 4.3 |
| 1958 | 1310.0 | 338.7 | 3.9 |
| 1959 | 1788.9 | 411.7 | 4.3 |
| 1960 | 2385.6 | 568.7 | 4.2 |
| 1961 | 3552.0 | 823.1 | 4.3 |
| 1962 | 5586.8 | 1266.1 | 4.4 |
| 1963 | 9591.2 | 2007.6 | 4.8 |
| 1964 | 18867.3 | 3742.2 | 5.0 |

Source: M. Simonsen, "Brazilian Inflation Postwar Experience and Outcome of the 1964 Reforms," Economic Development Issues: Latin America, N. Y., Frederick A. Praeger Inc., 1967) p. 279.

strong relation between the supply of money and rate of inflation with a high index of determination - $R^2 = 0.84$.⁴⁶

The best study that has been done so far to explain the relation between money supply and the rate of inflation is Harberger's study⁴⁷ of Chilean inflation which is based on empirical evidence and can explain causes of inflation in any Latin American country. By extension of Harberger's model to sixteen Latin American countries, Vogel investigates the impact of monetary factors on inflation and in particular the extent to which countries with widely varying inflationary and monetary experiences exhibit homogeneous behavior.⁴⁸

Vogel used the same econometric model as Hargerger's and explained the Brazilian rate of inflation with its relation with the supply of money during the period 1950 to 1969. The explicit econometric model is:

$$P'_t = \alpha_0 + \alpha_1 M'_t + \alpha_2 M'_{t-1} + \alpha_3 Y'_t + \alpha_4 A'_t + v_t$$

where P' is percentage changes on consumer price index at t period (rate of inflation), M' percentage changes on the supply of money (currency plus demand deposit) at t and $t-1$ periods, Y' percentage changes on real income (nominal GNP in currency deflated by the consumer price index) at t , and A' is the past changes in the rate of inflation ($P'_{t-1} - P'_{t-2} = A'$).

Running this model for Brazilian data with 16 observation ordinary least squares regression yields:

$$P'_t = .014 + .520 M'_t + .411 M'_{t-1} - .416 Y'_t + .168 A'_t$$

(3.0) (2.8) (0.6) (0.7)

$$N = 16 \quad \bar{R}^2 = .79 \quad \bar{S}_e = .097 \quad D. W. = 2.27$$

The t - values are given in paranthesis below each coefficient, \bar{R}^2 and \bar{S}_e are

respectively the multiple correlation coefficient and the standard error of estimate, both adjusted for degrees of freedom.⁴⁹

Vogel admits that, in agreement with Harberger's findings, the coefficients of both current and lagged money supply are significant (at 10 percent level), and their magnitude indicate that more of the adjustment to changes in the money supply occurs during the first year. The coefficients of changes in real income and lagged changes in the rate of inflation have respectively negative and positive, expected, sign but they are not significant. It suggests, Vogel claims, that past changes in the rate of inflation, maybe, is not a good proxy for expected changes.

This econometric model for Brazilian postwar data shows an important result. This model explains roughly 80 percent of changes in the rate of inflation and indicates that an increase in the rate of growth of the money supply causes a significant increase in the rate of inflation.

This is a purely monetarist approach of causes of inflation in Brazil.⁵⁰ Although this purely monetarist conclusion may not be implied for stabilization policy, but due to Vogel it is quite successful in explaining the causes of inflation in Brazil.

Footnotes

1. J. H. G. Olivera, "On Structural Inflation and Latin American Structuralism", Oxford Economic Papers, Vol. 16, No. 3, Nov. 1964, p. 322.
2. D. Seers, "The Theory of Inflation and Growth in Underdeveloped Economies: Based on the Experience of Latin America", Oxford Economic Papers, Vol. 14, No. 2, June 1962, p. 192.
3. Ibid.
4. What is meant by the word "structure" in this connection usually creates some confusion. Members of this school refer to the "structure" of income, demand, output, industry, exports, imports, administration, policies, society, etc. Broadly speaking, the more leftist structuralists mean by the word all these things, because each of them is considered in some way an impediment to economic growth and the achievement of a more equalarian society (Seers, op. cit., pp. 192-4).

It is a matter of interest, I think, to mention that the "two-gaps" models of economic development are also in this group of "structuralists". In summary this group of literature is based on the assumption that economies face two sequential limitations on growth. The first limitation is that in early stages of development domestic saving is low. Therefore, if inflation is not to occur, investment must also be low or a saving gap will exist ($I_r - s$: I_r is the investment requirement and s is the actual saving). The second is attributable to the structure of the economy. This structure is such that goods necessary for growth can only be obtained by running a deficit in the balance of trade, a trade gap, ($M_r - Ex$: M_r is foreign exchange requirement and Ex is export earnings, which will cause an exchange crisis unless foreign aid is forthcoming). The structuralist and the author of the two-gap models both emphasize the problems of structural change and the pressure such change may put on the exchange rate (Cachrane, S. H., "Structural Inflation and the Two Gap Model of Economic Development", Oxford Economic Papers, Vol. , No. , Nov. 1972, p. 385). Chenery and Eckstein model is the best sample of two-gaps model (Chenery, H. B. and Eckstein, P. "Development Alternatives for Latin America", Journal of Political Economy, Vol. 78, No. 4, July/August 1970).

5. A. R. Blair, "Import Bottlenecks and Inflation: The Case of Brazil," Oxford Economic Papers, Vol. 19, No. 2, July 1967, p. 235.
6. D. Seers, op. cit., p. 184.
7. A. R. Blair, op. cit., p. 236.
8. Ibid., p. 237.
9. Purchasing Power of Exports -- Value of exports of any year deflated by an import price index of that year.

10. Import substitution (I. S.) consist of establishing domestic production facilities to manufacture goods which were formerly imports. In other words, import substitution is the substitution of domestic production for imports. This is a process that occurred for long periods in such major industrial powers as Japan, the USSR, and the United States. Latin American countries promoted it during the depression (Baer, W., "Import Substitution and Industrialization in Latin America," Latin American Research Review, Vol. VII, No. 1, Spring 1972, p. 95). Throughout most of the fifties and sixties many Latin American governments adapts Import Substitution Industrialization (ISI) as their principal method achieving economic growth and socio-economic modernization. By the opening of the seventies, however, there is considerable doubt about ISI's success in solving the regions development problem.

Import substitution can be defined and measured in several plausible ways. A decline in absolute value of the imports as Baes and Kerstemetzky have done (Humphrey, D. B., "The Determinants and Structure of Import Substitution", Western Economic Journal, Vol. VIII, No. 3, Sep. 1970, pp. 25-6). This measure has some implications because this decline may refer to price changes independently or decrease in general demand for importable goods. Most investigators choose to measure (IS) by changes in a quantity ratio of domestic output to imports (Humphrey, op. cit., p. 26).

11. R. Kahil, Inflation and Economic Development in Brazil (London, Oxford University Press Inc., 1973), p. 199.
12. R. Blair, op. cit., pp. 238-42.
13. S. H. Morely and G. W. Smith, "Import Substitution as an Industrialization Strategy in Brazil", American Economic Review, Vol. LX, No. 2, p. 11.
14. T. C. Lousinger, "Import Substitution, Export Promotion, and the Snructure of Brazil's Protection," Journal of Development Studies, Vol. X, No. 4, April/July 1974, p. 430-42.
15. Ibid., p. 430.
16. Ibid., p. 431.
17. R. Blair, op. cit., p. 243.
18. R. F. Mikesell, "Inflation in Latin America," Latin America Problems in Economic Development, (N. Y., The Free Press Inc., 1969, Ed. C. T. Nisbet), pp. 164-8.
19. Ibid.
20. A. Blair, op. cit., pp. 242-43.
21. Ibid.

22. E. Gudin, "The Chief Characteristic of the Postwar Economic Development of Brazil," The Economy of Brazil (California, University of California Press, 1969, Ed. H. Ellis), p. 16.
23. J. Bergsman and A. Candal, "Industrialization: Past Success and Future Problems," The Economy of Brazil, op. cit., pp. 42-45; M. H. Simonsen, Brazilian Inflation Postwar Experience and Outcome of the 1964 Reforms, Economic Development Issue: Latin America (N. Y. Frederick, A. Praeger Publishers, 1967), p. 307.
24. R. Kahil, op. cit., pp. 43-4.
25. Ibid., p. 44.
26. Ibid.
27. D. Felix, "An Alternative View of the Monetarist - Structuralist controversy," Latin American Issues - Essays and Comments (N. Y., 1961, Ed. Hirschman), pp. 84-6.
28. R. Kahil, op. cit., pp. 91-2.
29. Ibid., p. 101.
30. Ibid., pp. 102-107.
31. Ibid., pp. 116-17.
32. Coffee and cotton alone account for almost 65 percent of the total weight of the (a) index. Rice and maize, part of which is occasionally exported, represent another 30 percent.
33. R. Kahil, op. cit., p. 126.
34. Ibid., 329.
35. E. Gudin, op. cit., p. 17.
36. M. Simonsen, op. cit., p. 287.
37. R. Kahil, op. cit., p. 275.
38. M. Simonsen, op. cit., p. 282.
39. R. Kahil, op. cit., p. 250.
40. M. Simonsen, op. cit., Table 8, p. 283.
41. M. Simonsen, op. cit., p. 282.
42. R. Kahil, op. cit., p. 88.

43. E. Pazos, op. cit., p. 88.
44. E. Gudin, op. cit., p. 17.
45. M. Simonsen, op. cit., p. 281.
46. F. Pazos, op. cit., pp. 109-118.
47. A. C. Harberger, "The Dynamics of Inflation in Chile", Measurement in Economics: Studies in Mathematic Economics and Econometrics in Memory of Yehuda Grunfeld, (Stanford 1963), p. 219-50.
48. R. C. Vogel, "The Dynamics of Inflation in Latin America," American Economic Review, March 1974, p. 102.
49. Ibid., pp. 105-108.
50. It is a purely monetarist model and with no structuralist variables. In fact Harberger started with quantity theory of money and Fisher's monetary equality $MV \equiv PY$ where M is the exogenously determined money supply, V is velocity, P is the price level, and Y is the real income.

CONCLUSION

The two most prominent explanations of causes of inflation in Brazil, as well as other Latin American countries, have been based on the structural and monetary theories.

The structural position is that in developing economies with rapid urbanization, structural maladjustments themselves may be responsible for imbalances which cause unavoidable price increase. The structuralist argues that the growth of real income and economic potential in a country increases demand in some sectors of the economy where bottlenecks prevent the expansion of the supply of goods.

The monetarist school stresses the control of inflation as one of the objects of economic policy in the developing economies. This group has maintained that contractionary monetary and fiscal policies are the appropriate cure for inflation where inflation is caused by excess demand. In essence, the monetarist believes that price stability is necessary prerequisite for sustained economic growth.

Detailed examination of the postwar data of Brazil leads us to conclude, despite the structural weaknesses and bottlenecks which exist in the Brazilian economy, these structural weaknesses do not significantly contribute to the inflation in Brazil.

We come to this conclusion by checking both internal and external bottlenecks of the Brazilian economy. We look at the supply of goods in both agriculture and industry sectors, urbanization and its effects on the prices of foodstuffs and demand of foodstuffs, the effects of the rate of growth of population and real income on demand for foodstuffs, the influence of import substitution and industrialization, and finally import bottlenecks and exports. In all

cases found monetarists analysis of the causes of inflation stronger than structuralists, due to Brazilian postwar inflation.

Then we paid our attention to direct causes of inflation, i.e., monetarist approach. We started from the immediate causes of inflation and found out how the expansion of credit created the first phase of inflation. Gradually, however, as inflation passes from one phase to another, credit expansion loses its power to act as an independent factor and becomes increasingly determined by the price due to the budgetary deficit and to continually rising wages; then public deficits in their turn are more and more affected by minimum wage legislation, and finally at the last stage of galloping inflation, the three phenomena interact in such manner that it is no longer to say which is the cause and which is the effect. It is at this particular stage, when all prices are rising with increasing violence that the central bank is compelled to supply the public sector with a growing volume of funds, while commercial banks are forced salaries have to be raised again and again to restore the rapidly declining standard of living of workers and employees. And it is then that three factors, originally responsible for the inflationary spiral, appear to be simply parts of its programming mechanism.

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CAUSES OF BRAZILIAN POSTWAR INFLATION, 1947-1964

by

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B. A. Tehran University, 1969

AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the
requirements for the degree

MASTER OF ARTS

Department of Economics

KANSAS STATE UNIVERSITY

Manhattan, Kansas

1975

ABSTRACT

Inflation is one of the most intensely studied problems in economics. In recent years inflation in Latin America has drawn particular attention. This is so because inflation in Latin America has been more widespread and more severe than any of the other developing regions of the world. In particular, chronic and large scale inflation has been the most prominent feature of Brazil's economy in the postwar period.

The relation between economic development and inflation is very much in dispute among economists. The opinion of economists may be divided into two groups, "structuralist" and "monetarist". The former group holds that inflation is "good" because it stimulates saving where all other policies fail. The monetarists, on the other hand, say that inflation is "bad" because it distorts and eventually stops economic development. Each group has its favorite country to support his position.

An examination of the empirical studies on inflation reveals that little is actually known about its general effects and even less about its impact on economic development. In Brazil, however, postwar inflation has coexisted with economic development.

The purpose of this report is to examine the structuralist and monetarists explanations for the inflation in Brazil during the period 1947-1964.

Detailed examination of the data for Brazil leads the author to conclude that structural weaknesses were not the primary cause of postwar inflation. The economic indicator which is most closely correlated with the rate of inflation in Brazil is the rate of increase in the supply of money. This conclusion is supported by both statistical data and econometric study models.