

THE BRAZILIAN STABILIZATION

EFFORTS OF 1964-1965

By

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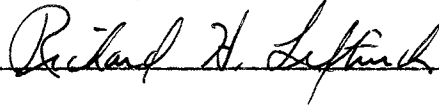
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## CHAPTER I

### INTRODUCTION

#### The Nature of the Study

Many countries such as France, Germany, Japan, Austria, and Italy experienced in this century a process of fighting severe inflations, somewhat similar to that Brazil started at the beginning of 1964. A fact common to nearly all of them was the occurrence of a crisis of reversion of expectations or crisis of stabilization, characterized by an industrial recession and a drop in the velocity of the circulation of money. This study concerns the cause and effect relationship between changes in three variables under the Brazilian efforts to fight serious inflation. These variables include money supply, price level, and exchange rate. Basically, the objective is to determine the implications of these efforts toward stabilization on the existent cause and effect relationships between changes in the three variables prior to the change in the economic policy.

#### The Hypothesis

It is assumed that despite the modification of the economic policy and of the substantial decline in the rate of inflation in 1965, the basic relationships between changes in the money supply, price level, and exchange rate remained the same. The validity of this hypothesis

ill be verified upon the determination of the nature of such relationships. As a basic methodology the changes in the money supply are considered the starting point. To explain the original changes in the money supply, two sets of specific factors are acknowledged. These are the external and the internal factors. They determine the changes in the money supply, hence, a supplemental hypothesis is admitted which states that after the change in the economic objectives, the external factors gained more significance over the internal factors.

#### A Brief Review of the Pertinent Literature

The problem of the determination of causal relationships between changes in the money supply, price level, and exchange rate has drawn significant attention especially when the verified changes in such variables were large. The importance of the problem is clearly stated by Gottfried Haberler in his book, The Theory of International Trade and its Applications to Commercial Policy, The Macmillan Company, New York, 1937, particularly in the chapter referring to exchange during inflation. He sees the causal relationships of changes in the variables as a mechanism of adjustment in the transitional period between two equilibrium positions and brings up the evidence of the German inflation to clarify his chief assumptions. Frank Graham in Exchange, Prices and Production in Hyper-Inflation: Germany, 1920-1923, Princeton University Press, Princeton, 1930, developed a detailed analysis by bringing together substantial theoretical arguments and empirical facts collected from the German inflationary experience. Chapters IV through VIII embody the major aspects of



the causal relationships. Bruno Foa, in his Monetary Reconstruction in Italy, King's Crown Press, New York, 1949, also refers to the determination of the causal facts, principally, about the importance of the behavior of the exchange rate. His study of the turning point of the monetary reconstruction is extremely helpful to the understanding of the insights of a recovery process. Another important work is by Eleonor Dulles, The French Franc, 1914-1928, The Facts and Their Interpretation, The Macmillan Company, New York, 1929, which is an elaborate investigation of the behavior of the French Franc in specific periods between 1914 and 1928. Chapters VI, VII, and VIII of this book provide valuable information for studies of a similar nature.

Bresicani-Turroni in The Economics of Inflation, George Allen & Unwin Ltd., London, 1953, also develops a detailed study about currency depreciation. He analyzes the German inflation between 1914 and 1923 and clarifies several factors of the stabilization crisis through an instructive approach.

Studies like Graham's, Dulles', and Turroni's are valuable for their theoretical presentations of the problem as well as for their methodological procedures. Regarding the Brazilian inflation, there exists a substantial number of works but none with the same depth and scope of the previous ones. Among those worth mentioning is The Economic Survey of Latin America, an annual extensive research work, pursued and published by the United Nations' Economic Commission for Latin America (ECLA).

Actually, these surveys provide a great deal of information with respect to the economic conditions of Latin American countries and their major problems. They provided the framework for Mr. Abdalla

Added's study on the inflationary process in Brazil and five other Latin American countries. His study is entitled An Econometric Interpretation of the Relationships of Price and Money Supply in Selected Latin American Countries With Special Reference to Brazil, Purdue University, 1963, University Microfilms Inc., 63-6458. This study involves the construction of four models which test the relationship between price level and money supply and other related variables through econometric techniques. Different aspects of all these studies were found useful and pertinent to this thesis, and they are appropriately mentioned in the following pages.

### The Methodology

For the purpose of accomplishing the objective of this thesis, the ensuing methodological procedure was adopted.

Chapter I - Statement of the problem and other preliminary considerations.

Chapter II - The work starts with the delineation of the principal features of the Brazilian inflation. Added's model is presented in order to expose the causal relationships between changes in the price level and in the money supply, and the degree of influence of the external and internal factors on the latter. Such relationships are accepted as being valid until the event of the economic policy renewal.

Chapter III - As known facts related to the new economic policy are brought into the discussions, the investigation is then developed to verify the relationships between changes in the money supply and changes in the price level after the policy remaking of 1964.

Chapter IV - Considerations regarding the exchange policy are now introduced; first, to verify the nature of the relationships between changes in the exchange rate and changes in the price level before 1964. Second, to observe narrowly the implications of the new economic policy on them.

Chapter V - The purpose is to investigate the role of internal factors and to find an explanation for the increment in the money supply. The final objective is to see if Added's test regarding the influence of internal and external factors over the money supply is still valid.

Chapter VI - It is a general inquiry about the validity of the study and a final support of the results.

In the Summary and Conclusions the obtained results are compared to the stated hypothesis.

#### The Scope of the Study

This study limits itself to the ascertainment of the existing dependence between variations in the money supply, price level, and exchange rate. Since the hypothesis is limited to changes in the three variables, considerations regarding equilibrium conditions will be avoided. Actually the disequilibrium state, is intrinsically assumed as the period of investigation corresponds to inflationary levels of high magnitudes. Besides, it does not aim to judge the new economic policy, but these results may prove to be useful for the formulation of criteria to judge the economic policy. Furthermore, as any other study, this thesis bears an implicit limitation which is established by its methodological approach. This is admitted when the

author recognizes and accepts the validity of the ECLA's surveys and of Added's model as being representative of the Brazilian inflationary process prior to the economic policy change. It is, then, obvious that the results depend upon the studies which were used as the starting point of this analysis. The essence of this thesis relies on the dynamic process of changes in the variables and not on the initial causes that set the process in motion.

## CHAPTER II

### THE BRAZILIAN INFLATION

#### Main Characteristics

Brazil has had a prolonged experience with severe inflation. However, the country did not experience stabilization efforts until the inflationary process reached its peak in 1964. The inflation that gained significance at the end of World War II only entered into the spiralling phase in 1959.<sup>1</sup> This occurred as a result of the rapid increase in the level of government expenditures and of the increasing influence of psychological factors. The observations of the Economic Commission for Latin America underline this viewpoint:

"The spiralling inflation of the sixties stemmed from a large deficit in the public sector plus the growing importance of the self-propagating factors of inflation itself."<sup>2</sup>

These self-propagating factors have mainly a psychological origin. In a rushing inflation there always exists an effort to offset prematurely the prospective price increase in order to avoid the risks of currency depreciation and the uncertainties of market conditions. To eliminate the self-propagating factors or the automatism of the process, price discipline should be included in the anti-inflation policy.

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<sup>1</sup>United Nations' Economic Commission for Latin America, Economic Survey of Latin America 1964, (New York, 1966), p. 57.

<sup>2</sup>Ibid., p. 58.

Regarding such a matter, Professor O. G. Bulhoes, the present Finance Minister of Brazil, comments as follows:

"Although the disequilibrium between expenditures and revenue in the governmental sector financed by the easy method of paper-note issues generally constitutes, among us, the original source of inflation through the generated disparity between the supply of money and the supply of goods and services in the internal market, it generally occurs that such a process is subsequently given impetus by other secondary factors that work as an instrument of the propagating mechanism of inflation. The increase in wages beyond the increase in the labor productivity as well as the banking credit expansion superior to the increment of physical production are typical elements of an inflationary spiral, where the interaction of several other factors contribute to the successive increase in prices and costs and to the monetary expansion. Afterwards, the generalized expectation of future price increases becomes an intrinsic ingredient of the inflationary process. ...Hence, the emphasis that the stabilization policy of the present government has attached to what is called reversion of expectations which consists fundamentally in withdrawing the automatism that characterized that action of inflationary pressure forces."<sup>3</sup>

Consequently, besides the necessity of lowering the level of government expenditures, the new economic policy also included the elimination of the self-propagating factors, through price discipline. The examination of the results shows a substantial reduction of the inflation in 1965. Concerning the attainment of such results, it seems relevant to append here the following observation:

"It must be admitted, however, that to a certain extent, this was accomplished at a content of suppressed inflation ..."<sup>4</sup>

The suppressed inflation served the purpose of reversing the individual's expectations regarding future price increases.

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<sup>3</sup> O. G. Bulhoes, Revista Economica, Jornal do Brasil, (Rio de Janeiro, Fevereiro, 1966), p. 3.

<sup>4</sup> Estudos APEC, "A Economia Brasileira e Suas Perspectivas", PEC editora S.A., (Rio de Janeiro, 1966), p. 301.

Actually, prices would have increased more if they had depended on the exclusive behavior of demand. The idea of suppressed inflation is very well explained by Abba Lerner. He defines inflation as being "an excess of demand over supply".<sup>5</sup> A suppressed inflation occurs when prices are prevented from rising. Yet, the excess of demand that underlies the inflation continues to exist.

Two main elements must be noted in the Brazilian inflation. One is the psychological factor, which is responsible for triggering the spiralling level of the inflation. This element results from the individual's expectations of continuous price increases. The other one is the progressive rise of government expenditures far in excess of expected revenue. The disequilibrium between expenditures and revenue in the governmental sector resulted chiefly from selling government services at fixed or slowly rising prices without taking proper cognizance of their spiralling costs. Due to popular pressure services passed through a process of rigid pricing during the evolution of the inflation.

#### The Essence of ECLA's Analysis

The Economic Commission for Latin America in 1953 analyzed the Brazilian inflation in these terms:

"In Brazil the process may be described as an inflation of investments, other factors such as fiscal deficits, the rise in wages, speculative investments and so on, were contributors rather than the cause of inflation. Furthermore, investments, were apparently not financed in their entirety from voluntary savings but through bank credits. Investments in the public sector were

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<sup>5</sup> Abba P. Lerner, "The Inflationary Process", Review of Economics and Statistics, Volume XXXI, 1949, p. 193.

made at cost of fiscal deficits and were, likewise, covered through bank loans or direct currency issues."<sup>6</sup>

At the time ECLA developed such an analysis, the inflation was measured at less than ten per cent a year. Analyzing these issues in Latin America, ECLA in its surveys of 1948 and 1953 set up a descriptive model which enumerates the prevalent features of the inflation process. It shows that changes in the price level are a function of changes in the money supply which, in turn, depends upon external and internal factors.<sup>7</sup> This functional relationship is stated as follows:

"...there is a close correlation in Latin America between variability in the money supply and price level fluctuations, the latter usually following the former. Thus, a study of variations in the money supply and their determining factors, whether of an internal or external nature, is a first step toward analyzing the problem of inflation."<sup>8</sup>

#### Added's Model

Added in his research study<sup>9</sup> built econometric models based on the analysis provided by the Economic Commission for Latin America. The basic relationships examined in his first model contribute a broader insight into the Brazilian inflationary pattern until 1964 and also provide a clue to the causal relationships of the hypothesis of this study. By using the following diagram, the underlying

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<sup>6</sup>United Nations' Economic Commission for Latin America, Economic Survey of Latin America 1953, (New York, 1955), p. 70.

<sup>7</sup>Ibid., 1948, Chapter 6.

<sup>8</sup>Ibid., 1953, p. 69.

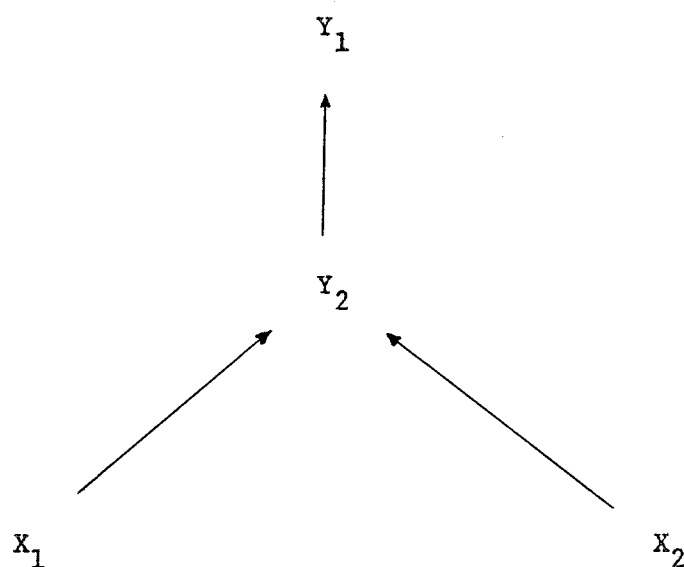
<sup>9</sup>Abdalla Added, An Econometric Interpretation of the Relationships of Prices and Money Supply in Selected Latin American Countries With Special Reference to Brazil, University Microfilms Inc., (Purdue University, 1963), 63-6458.



relationships of his model are:

FIGURE I

Diagram of Added's Model



re:

$Y_1$  - Price Level

$Y_2$  - Money Supply

$X_1$  - Internal Factors (Central Bank and other bank credits provided to the public and to the government.)

$X_2$  - External Factors (Holding of gold and foreign exchange.)<sup>10</sup>

The model is simplified with the assumption that the variables

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<sup>10</sup>Ibid., p. 25.

$X_1$  and  $X_2$  are considered to be most relevant. It should not be supposed that other elements are unable to influence the price level. In addition to the above mentioned factors, ECLA's survey in 1948 refers to import coefficients,<sup>11</sup> rate of growth of the volume of goods and services, changes in expectations by entrepreneurs and governments, and prices of imported goods. By taking all of these elements into consideration, the Brazilian inflation reasonably preserved an unaltered model of evolution. The process kept its homogeneity which is again substantiated by ECLA's survey in 1964:

"In 1961 and 1962, gross private investment as percentage of the gross product was more than double the 1950 level, and it remained high throughout the first half of the decade. When public investment was added, total investment remained at a high level and was an important factor in the inflationary pressure throughout the decade."<sup>12</sup>

As it was mentioned, the Economic Commission for Latin America placed Brazil in the group of Latin American countries which suffer inflation from both internal and external causes. In Added's model, variations in  $X_1$  and  $X_2$  both affect money supply. Therefore, the final effect on the price level will depend upon the combined action of variations in  $X_1$  and  $X_2$  over  $Y_2$ . Added tested his model over two distinct periods of the Brazilian inflation (1938-1947, 1948-1959) and reached the conclusion that:

"...changes in the external factors did not significantly cause changes in the level of money supply in either one of the periods. The opposite should be said about the internal factors."<sup>13</sup>

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<sup>11</sup> It must be interpreted as being the average propensity to import.

<sup>12</sup> United Nations' Economic Commission for Latin America, Economic Survey of Latin America 1964, (New York, 1966), p. 58.

<sup>13</sup> Added, p. 82.

The preceding considerations provide a general illustration of the Brazilian inflation until 1964 when the change in the political situation brought out a new economic orientation.

### Conclusions

The Brazilian inflation until 1964 is characterized by continuous increments in the supply of money, chiefly determined by internal factors which, in turn, stemmed from an attempt to invest above the capacity of the economy. The increases in the money supply are responsible for the increases in the price level. They are also affected by psychological factors. These psychological factors are fundamentally responsible for the automatism of the process.

### CHAPTER III

#### MAIN RESULTS OF THE NEW ECONOMIC POLICY

##### The Reduction of the Inflation Rate

Along with the change in political conditions that occurred in 1964, the prominent economic aim became the reduction of inflation. Such a decision could have been made long before 1964; however, two reasons explain why it was delayed. First, a severe cutback of government spending combined with wage controls would render the government unpopular with many voters. Second, the inflationary boom of private and public investments allowed a steady increase in money incomes. The government held the erroneous hope that the development boom would produce more consumer goods than paper money. Although the argument may not appear to be economically valid, the origin goes back to the observation of Baer and Kerstnetzky:

"The basic facts are that Brazil has had a high rate of inflation since the early 1950's, (averaging 25 to 30 per cent) the rate rising in the later period, but at the same time the average real growth rate was between 6 and 7 per cent, being higher in the later than in the earlier years. In 1961 the rate of growth actually reached 7.7 per cent."<sup>1</sup>

The results of the new economic policy became evident in 1965.

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<sup>1</sup>Werner Baer and Isaac Kerstnetzky, Inflation and Growth In Latin America, Richard D. Irwin Inc., (Homewood, Illinois, 1964), p. 364.

The rate of increase in the price level was significantly lower than in 1964. The figures in the following table illustrate the point:

TABLE I

Changes in the General Price Index of Brazil  
(Monthly Increase in %)

Months	1964	1965
January	11.3	4.8
February	6.7	3.1
March	7.4	6.0
April	4.4	2.4
May	2.7	1.7
June	4.3	1.2
July	6.4	2.7
August	2.9	1.2
September	3.8	2.0
October	4.5	2.0
November	7.0	6.9
December	6.0	1.9
Year	92.1	34.2

Source: Estudos APEC, "A Economia Brasileira e Suas Perspectivas", APEC editora S.A., (Rio de Janeiro, 1966), p. 4.

Though the inflation was largely reduced from 1964 to 1965, nevertheless, it was much higher than the 25 per cent hoped for by the government action plan. The majority of anti-inflation measures were taken gradually in order to attenuate the shock of the crisis which came about as a result of the "reversion of expectation" and

of the attempt of stabilization. In fact, such a crisis was limited to the second quarter of 1965. Therefore, the government seems to have been reasonably successful in reducing the inflation. The stabilization crisis was weaker and shorter than that experienced by Germany, Italy, or Japan in the post-war period. However, the increase in the money supply continued due to excessive public spending during 1965, creating a conflict with the announced stabilization policy. The magnitude of the discrepancy between the price level and the money supply is shown in the following table:

TABLE II

Per Cent Increases in the Price Level  
and in the Money Supply

Year	Price Level	Money Supply
1962	52.2	63.4
1963	79.9	64.8
1964	92.1	82.6
1965	34.3	74.8

Source: "Banco Central da Republica do Brasil", Relatorio Anual, (Rio de Janeiro, 1966).

The factor which contributed most to the increment of the money supply was the expansion of banking operations rather than paper-note issues. This is illustrated by the following table. A more detailed investigation of the expansion in the supply of money will be presented in Chapter 5.

TABLE III

## Volumes of Paper Currency and Bank Deposits

1962-1965

(In Billions of Cruzeiros)

Year	Paper Currency held by the Public	Bank Deposits	Total
1962	396.7	1,305.6	1,702.3
1963	683.8	2,108.4	2,792.1
1964	1,155.8	4,034.9	5,190.7
1965	1,729.9	7,374.1	9,104.0

Source: Estudos APEC, p. 27.

The Relationship Between Changes  
in the Money Supply and Price Level

The cause and effect relationship between money supply and price level involves a series of complex factors that interact among themselves. In the ECLA analysis and Added's model, increases in the money supply were responsible for increases in the price level before 1964.

How did the change in the economic policy affect the money supply and the price level? The cause and effect relationship between changes in the money supply and changes in the price level may be considered a vicious circle: the existence of a constant price increase instills into the individual's mind the need of making use of his money as quickly as possible. This requires more availability

of money and tends to bring further increases in prices.

Professor Graham, by emphasizing the relation between psychological factors and the velocity of circulation of money, points to the interaction of money supply and price changes.<sup>2</sup> He supports the argument that an increase in prices may bring an automatic increase in the velocity of circulation of money. In turn, the increase or decrease in the velocity of circulation of money may be the cause of increases or decreases in prices respectively. Hence, the Professor writes:

"We may conclude that the rate of monetary turnover is determined within certain bounds, solely by psychological attitudes and that these are affected by the course of prices."<sup>3</sup>

The influence of psychological attitudes is clearly evident in the Brazilian case. It is understood that the drop in the velocity of circulation of money stemmed from the public preference to keep higher cash balances in form of bank deposits. This was caused not only by the expectation that the rate of price increases would slow down but also by a credit squeeze which made it necessary to maintain larger cash accounts. In the last analysis there existed a mutual dependence between the velocity of circulation of money and the price level under the established conditions. The increase in the money supply remained within the normal pattern. The decline of the rate of price increases considered as a psychological factor, brought about a drop in the velocity of circulation of money.

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<sup>2</sup>Frank Graham, Exchange, Price, and Production in Hyper-Inflation: Germany, 1920-1923, Princeton University Press, (Princeton, 1930), Chapter 6.

<sup>3</sup>Ibid., p. 114.



Consequently, the desire to hold higher cash balances led to a decline in the rate of price increase.

Can a change in the general price level become the cause of changes in money supply? This seems to have occurred in France immediately after World War I when several price readjustments took effect. During the war time, individuals had their expenditures forcibly reduced.<sup>4</sup> Thus, the primary movement seemed to have emerged from the desire of individuals to consume what they were unable to obtain during the time of the war. The upward movement in prices led to the increase in money supply.

#### Conclusion

It has been shown that the rate of increase in the price level was reduced by about two thirds of its trend, whereas, the increase in the money supply remained close to the high level formerly attained. The discrepancy is attributed to the decline in the velocity of circulation of money, which is explained by the psychological influence of the drop in the inflation rate. This was caused by a cut in credit which forced the public to hold larger bank deposits. By using Graham's hypothesis, that continuous increments in prices are dynamic forces that may bring increases in the velocity of circulation of money, the reverse seems to be equally true. Consequently, the increase in the money supply explains the increase in the price level. The public preference for higher bank deposits

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<sup>4</sup>Eleonor L. Dulles, The French Franc 1914-1928, The Facts and Their Interpretation, The Macmillan Company, (New York, 1929), Chapter 7.

explains the decline in incremental rates of the price level, which in turn is responsible for the drop in the velocity of circulation of money.

## CHAPTER IV

### THE EXTERNAL SECTOR

#### The Balance of Payments

The Brazilian balance of payments in the year of 1965 showed a remarkable improvement relative to previous years and continued a pattern begun in 1964.

Brazilian economic authorities must maintain a surplus in the merchandise balance to offset the continuous deficit in the service item. This was caused by profit remittances, interests, dividends, insurance, freight payments, and commissions. The surplus in the balance of payments resulted mainly from increased exports. Imports in 1965 continued the decline started in 1964 and eventually reached the lowest level of the last ten years.

Lower imports in an inflationary situation are made possible only by tight restrictions. This policy permitted the accumulation of international reserves at levels rarely attained before. The fall in imports was accomplished by the general exchange policy. The annual report of the Central Bank gives the following clue:

"The consecutive decline in the last two years of the national expenditures in terms of imports of goods was not obtained by direction retraction, but by an exchange policy that aimed through indirect measures to avoid inventory accumulation and adjust imports to the real needs of the internal demand. This was observed as the market was completely normal, with respect to the existence and supply of foreign goods. In fact, the

TABLE IV  
BALANCE OF PAYMENTS  
(In Millions of U.S. Dollars)

ACCOUNT	1960	1961	1962	1963	1964	1965
Merchandise Balance	- 23	113	- 89	112	344	590
Services	-510	-410	-407	-333	-326	-400
Donations (Private and Public)	- 15	15	38	39	62	30
<u>TOTAL CURRENT TRANSACTIONS</u>	-548	-288	-458	-182	80	220
Inflow of Capital	485	676	475	349	312	154
Outflow of Capital	-410	-327	-310	-364	-278	-242
Other (Net)	17	- 45	90	38	45	5
<u>TOTAL NON-CURRENT TRANSACTIONS</u>	92	304	255	23	79	- 83
<u>ERRORS AND OMISSIONS</u>	- 26	49	-140	-120	-119	- 6
<u>SURPLUS OR DEFICIT</u>	-430	65	-343	-279	40	131

Source: Banco Central da Republica do Brasil, Relatorio Annual,  
Rio de Janeiro, 1966.

supplying of imported raw materials and of equipment goods was perfectly normal, including also final consumption goods not manufactured in the country."<sup>1</sup>

During the year 1965 the domestic credit restriction caused a slow-down in business which was a contributing factor in the reduction of imports.

### The Exchange Rate

The Brazilian exchange rate policy in 1964-1965 continued the major simplification of 1961. Advance deposits and financial charges over imports or transfers were abolished or reduced. This was made possible, in part, by the heavy flow of dollars made available to the Brazilian government due to the policy in Washington which was supporting the Brazilian economy with an increased flow of funds.

The exchange rate in 1964 remained stable from October to December. Then it was increased from 1,600 cruzeiros per United States dollar to about 1,850. Only after eleven months, in November, 1965, the rate was again altered, becoming 20 per cent higher--2,200. It is interesting to note the way the Brazilian Institute of Economics commented a month before the change:

"At the moment there is no prospect of any change in the exchange rates, despite the known fact that due to continued inflation, the internal value of the cruzeiro has declined."<sup>2</sup>

Actually, the supply of foreign exchange surpassed the demand.

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<sup>1</sup>Banco Central da Republica do Brasil, Relatorio Annual, (Rio de Janeiro, 1966), p. 69.

<sup>2</sup>Brazilian Institute of Economics, Conjuntura Economica, International Edition, (Rio de Janeiro, October, 1965), p. 15.

As a result, the government was able to utilize its reserves in case any speculative action emerged.<sup>3</sup> In spite of that, the change was effected. Again, the Brazilian Institute of Economics commented:

"The readjustment of around 20% is practically the equivalent of the expenses added to the exchange resulting from the advance deposits and other financial charges that burdened imports and financial transfers."<sup>4</sup>

Consequently, in respect to imports in terms of the foreign exchange policy, the circumstances remained practically unchanged as no variations arose from it.<sup>5</sup> The import decline stemmed in part from the slow-down in business, since no attractiveness was provided for imports. The exchange policy was more concerned with providing export incentives and international reserve accumulation. In fact, exports responded promptly to the increase in the exchange rate.

It is true that the inflation proceeded, although on a lower scale. The exchange rate became less affected by price level increases due to the sharp increase in foreign funds. Formerly, the exchange rate increased more rapidly than the price level, now the opposite was the case.

#### The Relationship Between Changes in the Price Level and Changes in the Exchange Rate

This relationship is one of the most intricate, and it has been

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<sup>3</sup>It was only necessary in the bank-note market when the Central Bank had to cover a temporary excess of demand.

<sup>4</sup>Brazilian Institute of Economics, Conjuntura Economica, International Edition, (Rio de Janeiro, December, 1965), p. 13.

<sup>5</sup>Except for those goods that already benefited from the exemption of advance deposits and financial charges.

subjected to wide controversies. The idea is expressed by the theory of purchasing power parity. In its absolute form it affirms that the level of exchange rates should correspond to the level by which a certain quantity of currency has the same amount of purchasing power in several countries.<sup>6</sup>

Professor Haberler<sup>7</sup> restated it by taking into consideration those factors leading to permanent price discrepancies, such as costs of transport, etc. The substance of the theory would be the concepts that distinguish it from the balance of payments theory. Therefore, when several price levels are considered, it is perfectly correct to admit appropriate levels of exchange rates which are not necessarily proportionate.

If the theory of purchasing power parity were admitted in its absolute form, the causal relation would have been intrinsically determined because it assumes that changes in the exchange rate result from proportional variations in the price level; however, such a hypothesis is not supported by the majority of the economists. Actually, changes in the exchange rate may lead to changes in the price level.<sup>8</sup>

The Brazilian case does not seem difficult to understand. Prior to 1961 through a system of fixed and multiple exchange rates, there always existed the tendency to attribute to the cruzeiro an external

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<sup>6</sup>Wasserman, Hultman and Zsoldos, International Finance, Simons, Boardman Publishing Corporation, 1963, p. 227.

<sup>7</sup>Gottfried Haberler, The Theory of International Trade and Its Applications to Commercial Policy, Macmillan Co., (New York, 1937).

<sup>8</sup>Professor Albert Aftalion, in "Monnaie, Prix et Change," reaches such a conclusion when he investigated European countries in 1921-1924. Apud, Wasserman, p. 231. Also, Dulles, Chapter 6.

value higher than its internal value. Although constantly influenced by the monetary authorities, such preoccupation disappeared with the establishment of the free exchange market in 1961. Exports became the main focus of attention in 1964 and 1965. Exchange rates were always set up at relatively high level for the purpose of stimulating exports, a necessary condition to cover the balance of payments deficit in 1962 and 1963. On several occasions the government was conscious that if complete liberty were provided to the exchange rate, it would attain lower levels than those actually established. Regarding such free exchange issues, the Brazilian Institute of Economics commented in May of 1963:

"...if this were to come about, the government would be obliged to support the dollar in order to prevent the cruzeiro from depreciating excessively, which would be harmful to exports."<sup>9</sup>

Noteworthy outcomes were verified, and the comment proceeded:

"...it is important to note that the rhythm of exports ...again began to increase just as soon as domestic products were able to regain their competitive power on foreign markets."<sup>10</sup>

On the other hand, the government was permanently apprehensive that a lower exchange rate would bring additional pressures on the demand for imports. The attitude of speculators that would attempt to build up inventories was heavily considered. Besides, with the exchange at a lower level, an ample discrepancy would arise between costs of imports and the increasing rise in prices and costs in the domestic market. The difference would also increase the pressures

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<sup>9</sup> Conjuntura Economica, (March, 1963), p. 17.

<sup>10</sup> Ibid., p. 18.



n the demand for imports. Regarding a similar situation, an Italian economist commented:

"We have a great internal scarcity of commodities, and hence extremely high prices. Many people are therefore willing to purchase imports at a very high rate of dollar or sterling exchanges, since they can count on large proceeds in the domestic market. It follows that high exchange rates are the result of high domestic prices, and not the other way around."<sup>11</sup>

Up to a certain extent, this seems to have been more evident in Brazil around 1961 and 1963. However, by bearing in mind this very fact, the government increased the exchange and avoided further pressures on the demand for imports, as it stimulated exports. Consequently, rises in the exchange rose primarily from rises in the price level. In 1964 a surplus in the balance of payments appeared and extended through 1965, when the exchange remained practically stable for several months. This had not happened previously even though prices rose. Simply because it was already artificially high, no extra pressure on the demand for it came about in the period.

The exchange rate was later on increased less than the increase in the price level; yet, it was not permitted to express an actual correspondence to the price level. As the rate of increase in the price level decreased, the rate of increase in the exchange rate also declined, but more rapidly. However, the increase in the exchange rate created a condition for the increment in the international reserves which, in turn, was a condition for the increment in the money supply. Yet, it is never to be forgotten

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<sup>11</sup> Bresciani-Turroni, apud Bruno Foa, Monetary Reconstruction in Italy, King's Crown Press, (New York, 1949), p. 53.

that the exchange rate was always augmented by the reason of the increment in prices, inasmuch as the government was at all times apprehensive with the occurrence of opposite discrepancies. Therefore, after 1964, changes in the exchange rate were likewise derived from changes in prices; however, the increase in exchange produced a condition for the increase in international reserves.

## CHAPTER V

### THE MONETARY EXPANSION

#### The Internal Sector

The increase in the money supply in the period 1964-1965 reached unexpected levels and revealed a paradoxical situation regarding the government program of economic and financial action.

The excess of the expansion of the quantity of money is primarily accounted for by two factors: (a) the increase in international reserves, and (b) the growth of the coffee harvest.

In the first case, it is sufficient to note that from 1964 to 1965 exports increased from \$1,430 million to \$1,560 million while imports decreased from \$1,086 million to \$970 million. The fact indicated above associated mainly with the industrial recession of the first semester of 1965, allowed the government the accumulation of international reserves at a level 76.9 per cent higher than the one attained in 1964. The monetary expansion occurs, due to the purchase by the Central Bank of such reserves held initially by commercial banks.

The second fact is also a situation that was unpredicted by the government. The coffee production exhibited an unusual high level while its exports declined. The monetary expansion takes effect because the IBC (Brazilian Coffee Institute) practically purchases the whole coffee output regardless of the amount of exports.

These factors are merely conditions for the increase in the money supply, and they partially explain it. Considered by themselves, they are unable to set a proper justification for the monetary expansion. In the absolute sense they do not have great significance.

The following table shows the responsibility of the different sectors for note issues:

TABLE V

## Sectors Responsible for Note Issues

(In Billions of Cruzeiros)

Sector	1964	1965
National Treasury	+ 203.5	- 875.3
Private Sector	+ 416.1	+ 659.0
Coffee	- 200.9	- 359.0
Exchange System	+ 267.5	+1,045.1
Swaps	+ 56.9	+ 328.2
Other Accounts	- 146.6	- 189.1
Increase in Note Issues	566.9 (69.2%)	685.0 (49.3%)

Source: Estudos, APEC, p. 30.

(The plus sign indicates sectors that acted toward the expansion of paper note; and the minus sign, sectors which furnished resources to monetary authorities, i.e., alleviated the inflationary pressure from the viewpoint of paper note issues.)

The main source of inflation is always the deficit in public expenditures. While actual figures are not available, the following

table shows the ratio of the cash deficit to the budgeted income:<sup>1</sup>

TABLE VI

## Ratio of Cash Deficit to Budgeted Income

1960-1965

Year	Ratio (%)
1960	35.3
1961	45.9
1962	56.8
1963	57.0
1964	38.6
1965	18.7

Source: Economics Department of the Central Bank,  
Apud Estudos APEC, p. 31.

The financing of the national budget deficit in 1965 required less inflationary practices. The reduction of public deficit spending generates, in the short run, serious problems in the private sector.

A switch to borrowing from banks in lieu of note issues reduces the credit available to the private sector of the economy.

## The Change in Public Habits

The creation of means of payments through the banking system is limited primarily by the existence of conventional or legal reserve

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<sup>1</sup>Includes variations in cash of National Treasury, "Estudos APEC," p. 31.

ratios. The effectiveness of such control is, in turn, limited by the capacity of the Central Bank to impose or enforce legal reserves.<sup>2</sup> In Brazil the problem is different in one specific aspect. Deposits to the order of the Central Bank constitute its normal operational resources.<sup>3</sup>

Another weighty element that restrains the capacity of the banking system in generating means of payments is the public behavior regarding the amount of money one retains in his hands. It seems to have played a paramount role in Brazil in 1965. It is more useful, however, in this case to appraise it in relative terms. That may be done by figuring the incremental ratio between the increase of money in hands of the public and the increase in means payments.

Letting  $dC$  be the increment of money in public hands and  $dM$  be the increment in the money supply, this ratio may be expressed by  $h$  as follows:

$$h = \frac{dC}{dM}$$

In Professor Delfim Netto's study<sup>4</sup> this ratio was figured by using data of the following TABLE VII, referring to two distinct periods: July, 1963 - July, 1964 and July, 1964 - July, 1965.

Consequently, it is possible that prior to the change in economic and finance policy, the ratio  $h$  was greater. The foremost economic significance of the reduction in  $h$  is the increase in the banking capacity of creating means of payments, resulting from the public

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<sup>3</sup> Antonio D. Netto, "Tentativa de Expliacao das Causas que Determinaram a Expansao dos Meis de Pagamento em 1964 e 1965," Estudos APEC, p. 193.

<sup>4</sup> Ibid., pp. 197-208.

TABLE VII

Ratio of Increase of Money in the Hands of the Public  
to the Increase in the Means of Payments

Ratio		July, 1963- July, 1964	July, 1964- July, 1965
(In Billions	dC	436.4	479.2
of Cruzeiros)	dM	1,772.4	3,173.5
$h = dC/dM$		0.246	0.151

Source: Estudos APEC, pp. 197-198.

preference for banking deposits.

In addition to the substantial increment in banking deposits, it is also worthy of remark that commercial banks reduced the ratio of currency to deposits and that the Bank of Brazil, a commercial bank which retains around one-fourth of bank deposits in the country, lowered substantially the amount of its cash balance. Both facts may be seen in TABLE VIII.

#### An Evaluation of the Capacity of the Banking System to Create Means Payments

To evaluate the capacity of the banking system to increase the money supply, the use of a multiplier is considered. The same Professor Delfim Netto, made use of the following:<sup>5</sup>

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<sup>5</sup>This multiplier is analagous to the multiplier related to the increment in the money supply resulting from the increase of one unit in excess reserves.

TABLE VIII

## Ratio of Currency to Deposits

July, 1963-July, 1964 and July, 1964-July, 1965

Banks	Increase in Deposits (A)		Increase in Cash Balances (B)		Ratio A/B	
	Period		Period		Period	
	(1)	(2)	(1)	(2)	(1)	(2)
Brazil	347.9	748.6	47.6	19.8	0.0356	0.0074
Others	988.1	1,945.7	55.9	75.8	0.0419	0.0281
Total	1,336.0	2,694.3	103.5	95.6	0.0075	0.0355

Source: Estudos APEC, pp. 198-199.



$$dM = KE$$

being:

$$K = \frac{1}{r + h (1-r)}$$

where:

dM - increase in the money supply

E - volume of paper note issue

K - the multiplier

r - ratio between the increase in cash and the increase in deposits

h - ratio between the increase of money retained by the public in its hands and the increase in the money supply

Substituting values: for the period July, 1963-July, 1964,  $K = 3.285$ ; for the period July, 1964-July, 1965,  $K = 5.521$ . Therefore, it may be concluded that every cruzeiro issued in the considered period of 1963-1964 was responsible for 3.285 units of increment in the money supply; while for the considered period of 1964-1965, the responsibility was 5.521 units.

From what is known thus far about the increase in the money supply and in the general price level, it is useful to recall that there existed a significant decline in the velocity of circulation of money. However, an explanation for the change in the level of the currency ratio (h) must be found. Professor Cagan says that the level of the currency ratio may be explained through costs and advantages of holding currency.<sup>6</sup>

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<sup>6</sup>Philip Cagan, The Demand for Currency Relative to the Total Money Supply, Journal of Political Economy, Volume LXVI, (August, 1958), pp. 303-328.

In the present case the advantage of maintaining higher deposits is explained by the expectation of a decline in the rate of price increase and, also, as Professor Cagan emphasizes, by a greater confidence in the expected net rate of return on deposits.<sup>7</sup>

Yet, the greatest problem derived from the fall in the velocity of circulation of money is to know whether it is stable or not. It may well be possible that it occurred partly by a redistribution of liquidity; however, this seems extremely difficult to verify. The decline in the velocity of circulation of money may be associated with the condition of credit originated by the accumulation of international reserves. It could thus be concluded that economic authorities may have forced the decline in the velocity of circulation of money in order to accumulate international reserves. The drop in the velocity of circulation of money as well as the industrial recession was not included in the Government Plan of Economic Action in 1964. But this fact occurred in some other countries, likewise, it probably has occurred in Brazil.<sup>8</sup> On the other hand, the problem may be scrutinized differently if the drop in the velocity of circulation of money is considered as an autonomous occurrence. As Professor Graham says:

"A quick drop in the rate of monetary turnover occurred in practically every case of stabilization effected in post-war depreciated currencies and required additional issues of notes to prevent the stabilization from turning into a sharp appreciation of the currency."<sup>9</sup>

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<sup>7</sup> Ibid.

<sup>8</sup> Mario H. Simonsen, "A Politica Anti-Inflacionaria de 1965", Revista Economica, Jornal do Brasil, (Fevereiro, 1966).

<sup>9</sup> Graham, p. 114.

But, following the reasoning of Professor Graham, it may be said that in the Brazilian case, it returned to its normal state. Consequently, since such a fact must occur, the large increment in the money supply seems not to have been so damaging to the economy. As a matter of fact, it may be affirmed that the short duration of the recession of the second quarter of 1965 was an effect on the money supply expansion.

The interpretation may be as follows: the fall in the velocity of circulation of money permitted the accumulation of international reserves; the increment in the money supply was allowed in order to favor the tendencies of international trade. Professor Haberler shows that, although a necessity, it brings some dangerous consequences along with it:

"The possibility or rather the necessity of increasing the quantity of money and raising prices if the exchange is to be kept stable has indeed the effect of facilitating stabilization, but on the other hand, it is liable to produce an inflationary boom with a consequent depression later on."<sup>10</sup>

#### The Determining Factors of the Increase in the Money Supply

Returning to Added's model presented in the second chapter, it is recalled that the money supply is directly related to the price level. Therefore, factors able to affect money supply will indirectly explain variations in the price level. Such factors were said to be of two distinct natures: external and internal. If this model is assumed to be a given model extracted from the Brazilian economic experience

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<sup>10</sup> Haberler, p. 57.

prior to the implantation of the new economic platform, it will be necessary to relate the behavior of variables within such a model to their behavior subsequently to the change in the economic policy.

If the attention is turned to the subsequent period beginning in 1964, some conspicuous dissimilarities are to be noticed. The most significant one regards the substantial participation of the external sector as a contributing element to the expansion of the money supply. With respect to internal factors, the credit expansion capacity of commercial banks increased substantially, as it was demonstrated through the credit expansion multiplier. Yet, in the general computation of internal factors, although bearing a heavy share, it did not have the proportionate influence because the Central Bank largely reduced its credit provision to the public and to the government. Therefore, after the change in the general economic policy in Added's structure the external factors became more important.

#### Conclusion

The greatest part of the financing of the national budget deficit was accomplished in 1965 through non-inflationary resources. The credit supply by the government was substantially reduced, whereas, there existed an increase in the credit expansion multiplier of the commercial banks. However, the increase in public deposits had an alleviating effect on inflationary pressures while the increase in the international reserves had an opposite effect. Therefore, if the increase in the money supply is basically explained through the multiplier, it is obvious that the increase in the volume of international reserves was heavily responsible for such an increment. For

within the same reasoning and evidence, the external sector required more resources from the monetary authorities than all other sectors added up.

## CHAPTER VI

### THE RELATIONSHIP BETWEEN CHANGES IN THE MONEY

#### SUPPLY, PRICE LEVEL, AND EXCHANGE RATE

In the price-specie-flow theory the equilibrium in international payments is the result of the outflow or inflow of gold which causes a decrease or increase in the quantity of money. Hence, the decrease or increase in prices stimulates exports and retards imports or vice-versa. Consequently, effects on exports and on imports reverse the initial direction of the flow of gold, re-establishing the equilibrium.

Sometimes in Brazil the exchange rate may have reflected an equilibrium position in relation to the price level. An inflationary process sets in motion severe distortions which do not permit the maintenance of equilibrium. In the beginning of this study, emerging from the historical evidence of the Brazilian inflation, the lack of equilibrium was implied. Previously, it has been seen that increments in the money supply were the cause of increments in prices, and changes in the exchange arose from changes in prices. This fact brings a relation between the money supply and the exchange rate. Professor Haberler admits that both variations in prices and exchange rates may be effects of the cause changes in the money supply. He says:

"If successive waves of extra money are spent in the first instance on home products, then average prices rise faster than the exchange depreciates. If, on the other hand, they are used to buy imports, or if costs increase very sharply in the export industries, then the opposite

happens."<sup>1</sup>

As it was verified in 1964 and 1965 in the Brazilian international trade, imports suffered a notable reduction while exports increased substantially. Furthermore, the lack of demand for imports was also a condition for the accumulation of international reserves. Therefore, there is no evidence of a direct relationship between the increase in the money supply and the rise in exchange. The same point underlines the previous conclusions relating the increase in the money supply to the increase in the price level. However, prices should rise more than the increase in exchange rates. Actually, it was not true in the period prior to the economic policy modification, as exchange rates fell more than the price level. In examining the German inflation, Professor Haberler reached the same point where increments in the exchange rate were higher than increments in the price level. He attributed the occurrence to the participation of psychological agents:

"The chief reason, however, which kept the depreciation of the exchange ahead of the rise in prices was psychological."<sup>2</sup>

The Brazilian pattern was reversed in 1965 when the exchange increased 20 per cent while the general price level went up 34.3 per cent. The trend reversal followed the beginning of the economic stabilization policy. A restoration of confidence in the economic policy caused a drop in the velocity of circulation of money. It was followed by a drop in import payments which permitted the accumulation of international reserves. If economic authorities had

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<sup>1</sup>Haberler, p. 53.

<sup>2</sup>Ibid.

not kept the exchange rate in line with the domestic price level, they would be running the risk of an excessive increase in imports and would make it difficult to accumulate international reserves. Therefore, during the stabilization process the exchange rate was permitted to remain at an intermediate position. Actually, it was a fact already experienced.

"Most of the post-war stabilizations were therefore carried out at a parity somewhat higher indeed than the actual rate of exchange, but lower than would correspond in equilibrium to the ruling price level."<sup>3</sup>

While it helps the stabilization process, it provides room for further development of the inflation.

The cause and effect relationship between changes in the money supply, price level, and exchange rate does not follow a pattern of perfect proportionality. However, the lack of it may generate a problem in itself particularly if causes of small magnitudes are responsible for effects of great magnitudes and viceversa.

In analyzing the Brazilian situation it can be readily misinterpreted because the exchange rate is continually influenced by the Central Bank. Therefore, the exchange rate may not be reflecting the market forces. By using an analogy to Lerner's definition of inflation cited in the second chapter, as long as an excess of demand over supply exists in the foreign exchange market together with a suppressed depreciation, the excess that characterizes the transitional phenomenon will not characterize the facts considered in a determined moment.

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<sup>3</sup> Ibid., p. 57



## CHAPTER VII

### SUMMARY AND CONCLUSIONS

This study dealt with the implications of the change in the economic policy in Brazil, in 1964. Three major conclusions may be drawn. First, after the change in the economic policy, increases in the money supply were responsible for increases in the price level which, in turn, were responsible for increases in the exchange rate. Second, the exchange rate did not reflect purchasing power parity before 1964, and it continued the trend with the reduction of inflation, however, at a significantly lower rate. The rate was pegged at an intermediate position, considering the balance of payments and the domestic price level. Third, a decline in the velocity of circulation of money followed the decline in the rate of inflation. The decline in the inflation rate is related to the regaining of public confidence in the economic policy. This was reflected in the increase of bank deposits. Regarding paper note issues the external sector substantially contributed toward its expansion. When the increase in the multiplier is considered, the external sector becomes heavily responsible for the expansion in the supply of money.

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