
*A Comparison of Long-Term Monetary Behaviour and Institutions in Brazil, Europe, and the United States**

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This essay consists of a comparison of the long-term monetary behaviour and institutions in Brazil with the experience of Europe and the United States in their formative periods. Two "monetary interpretations of history" are used in the comparison — the money supply framework of Friedman-Schwartz-Cagan, and the analysis of banking systems and financial institutions developed by Professor Rondo E. Cameron in his extensive research in European history.¹ The application of these interpretations to the Brazilian experience and the resulting comparisons are discussed below in parts I and II, our general conclusions are to be found in part III.

* This research was supported by two research grants from the Joint Committee on Latin American Studies of the Social Science Research Council and the American Council of Learned Societies in the period 1971-1973. The Center for Latin American Studies and the University Research Council of Vanderbilt University, and the Department of Economics of the Catholic University of Rio de Janeiro provided additional support. Professor Aldo de Maddalena kindly suggested certain changes in an earlier version of this paper that was presented at the Sixth International Congress of Economic History, Section on Monetary Inflation in Historical Perspective, Copenhagen, 22 August, 1974. I am grateful to Rudolph C. Blitz, Mircea Buescu, Rondo E. Cameron, Nicholas Georgescu-Roegen, Nícia Vilela Luz, William H. Nicholls, Denio Nogueira, Wilson Suzigan, and Earl W. Thomas for suggestions or encouragements at various stages in a period of years. None of these persons or institutions is responsible for errors or opinions which are my sole responsibility.

¹ MILTON FRIEDMAN and ANNA JACOBSON SCHWARTZ, *A Monetary History of the United States, 1867-1960*. Princeton: Princeton University Press, 1963; ID., *Monetary Statistics of the United States: Estimates, Sources and Methods*. New York: Columbia University Press, 1970; PHILLIP CAGAN, *Determinants and Effects of Changes in the Stock of Money, 1875-1960*. New York: Columbia University Press, 1965; DAVID MEISELMAN,

I. THE BEHAVIOUR OF THE MONEY STOCK

The monetary statistics of Brazil have been reconstructed for the period 1800-1973, following the method of the National Bureau of Economic Research.² The series are now available on a yearly basis for the years 1800-1851 and on a quarterly basis for the years 1852-1973. This is one of the longest homogeneous series of monetary data available, specially in a context of underdevelopment. Chart 1 shows the long-term behaviour of two definitions of the money stock (M_1 , currency in the hands of the public plus demand deposits adjusted, and M_2 , M_1 +time deposits adjusted) and their proximate determinants (high-powered money and the currency and reserves ratios). Between 1869 and 1970, M_1 increased at the continuously compounded average rate of 11.7% per year,³ and M_2 at 11.6%. These are extremely high long-term rates of increase. The comparable rate estimated for M_2 by Friedman and Schwartz for the United States in the period 1867-1960 was only 5.3%, and that of M_1 for Italy, estimated by Cohen for the period 1880-1914, was only 3.2%. Thus the long-term behaviour of the money stock of Brazil was characterized by a rate twice as high as that for most European countries and the United States.

Table 1 shows the analysis of monetary growth. It constitutes an effort to identify the factors of change in the stock of money in terms of its approximate determinants — H , currency held by the public plus bank reserves or the stock of high-powered money (behaviour of the government), C/M , the ratio of currency in the hands of the public/money stock (behaviour

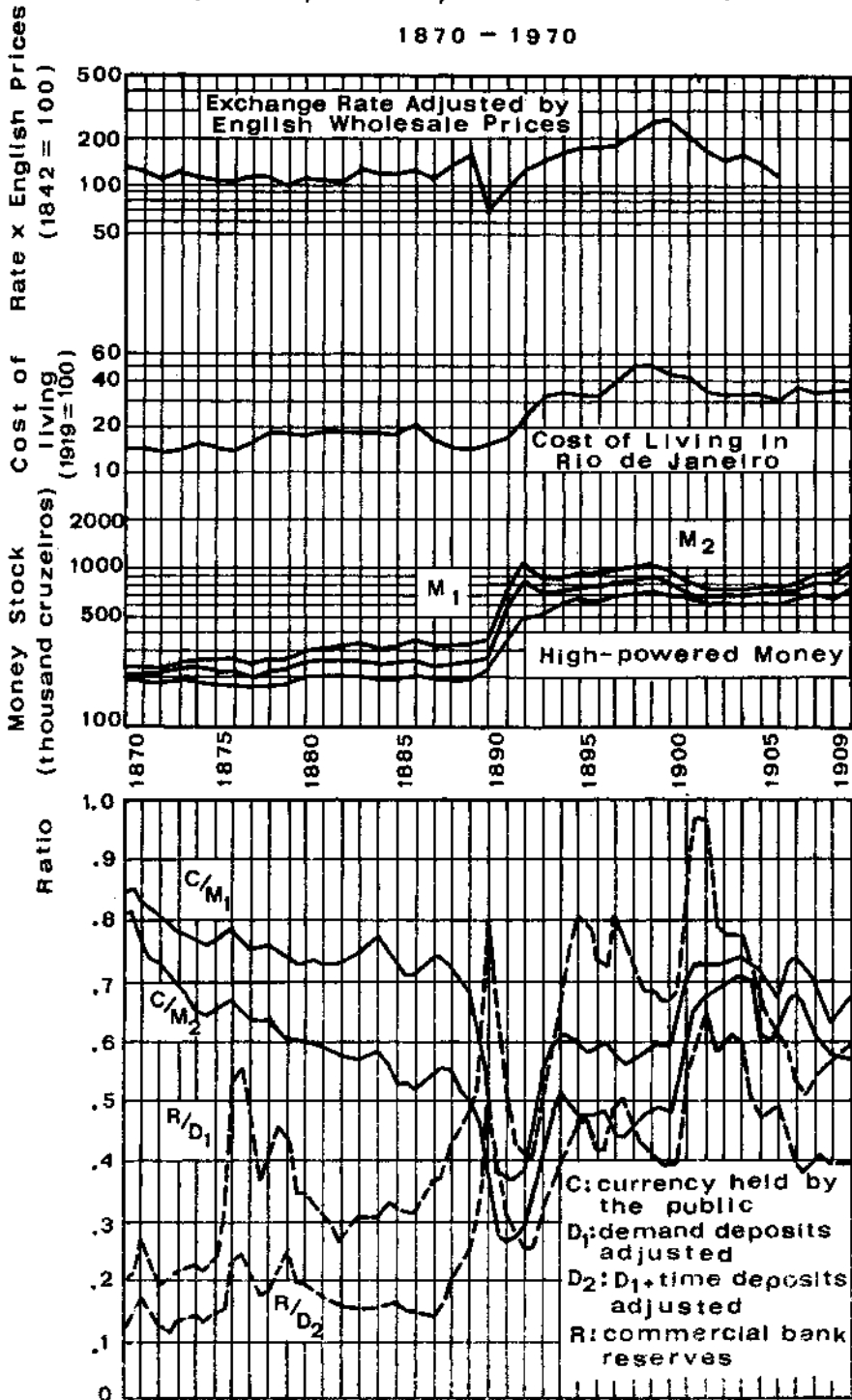
ed., *Varieties of Monetary Experience*. Chicago: University of Chicago Press, 1970. The list of works that criticize the Chicago approach is almost unlimited. An excellent critical evaluation of the monetary history of Friedman and his research associates is the work of JAMES TOBIN, *The Monetary Interpretation of History: A Review Article*, «American Economic Review», June, 1965. The lack of analysis of the rate of interest was criticized by HARRY G. JOHNSON, *A Quantity Theorist's Monetary History of the United States*, «Economic Journal», June, 1965 and also by ALLAN MELTZER, *Monetary Theory and Monetary History*, «Schweizerische Zeitschrift für Volkswirtschaft und Statistik», V. 101, 1965. The reply of FRIEDMAN is in *Interest Rates and the Demand for Money*, reprinted in FRIEDMAN, *The Optimum Quantity of Money and other Essays*, Chicago Aldine, 1969. The institutional approach to monetary history is in the works of Professor RONDO E. CAMERON, *Banking in the Early Stages of Industrialization*, New York: Oxford University Press, 1967; *Banking and Economic Development: Some Lessons of History*, New York: Oxford University Press, 1972; *Metropole e Hinterlandia na Historia das Finanças*, «Revista Brasileira de Economia», July-September, 1972, Special Issue in Celebration of the 150th Anniversary of the Independence of Brazil.

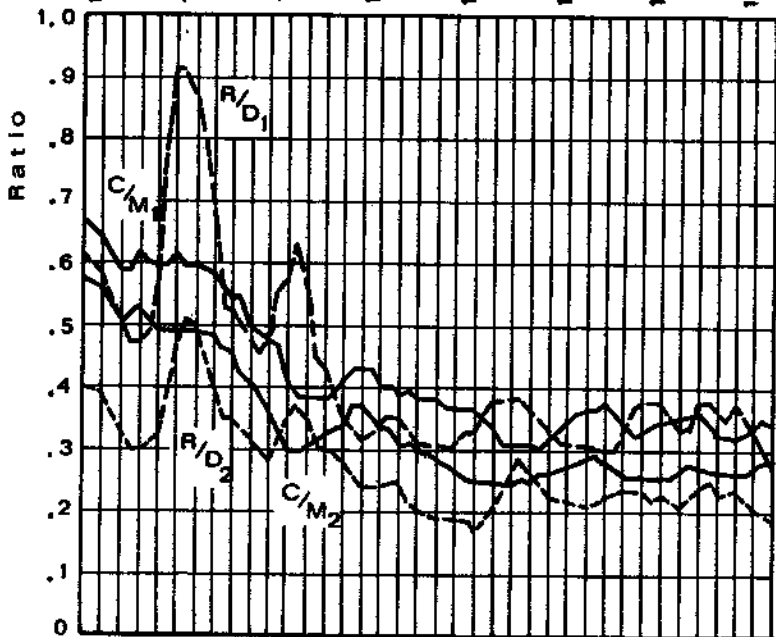
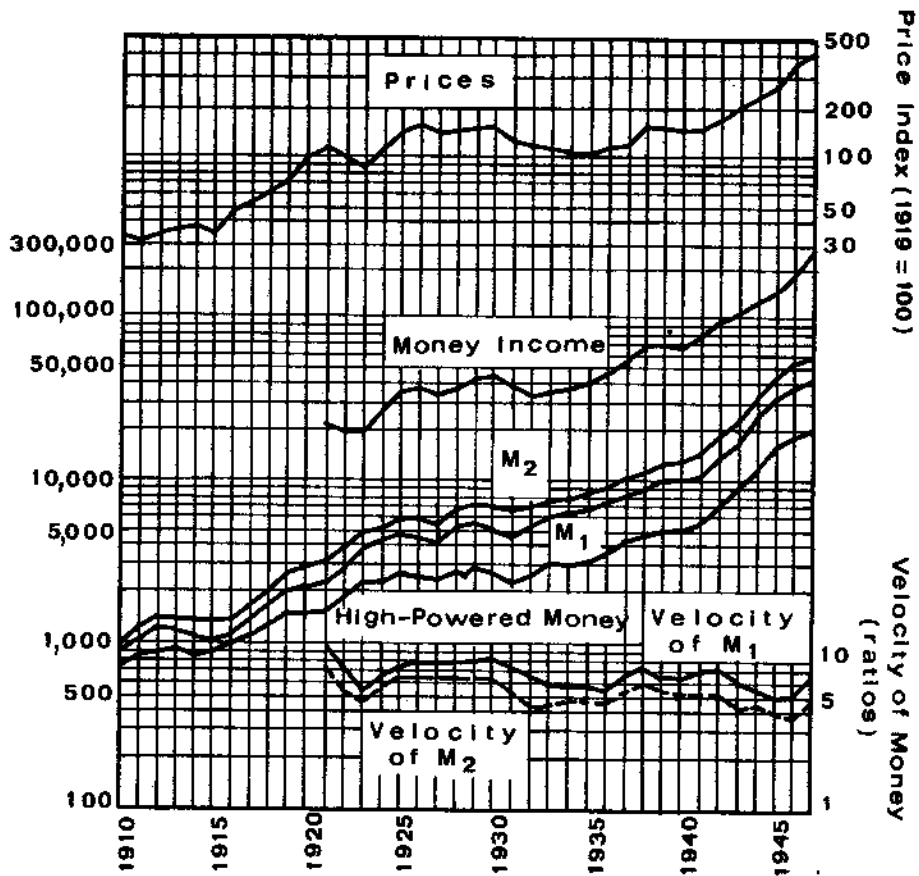
² CARLOS MANUEL PELÁEZ and WILSON SUZIGAN, *Monetary History of Brazil, 1800-1973*, translated by Magnolia Maciel Peláez as *A Política Monetária do Brasil, 1800-1973: A Transição de Economia de Subsistência a Economia Industrial*, São Paulo: «Coleção Brasileira», Companhia Editora Nacional, in press. The method followed was that of FRIEDMAN and SCHWARTZ, *Monetary Statistics*...

³ All rates in this essay are continuously compounded.

Chart 1

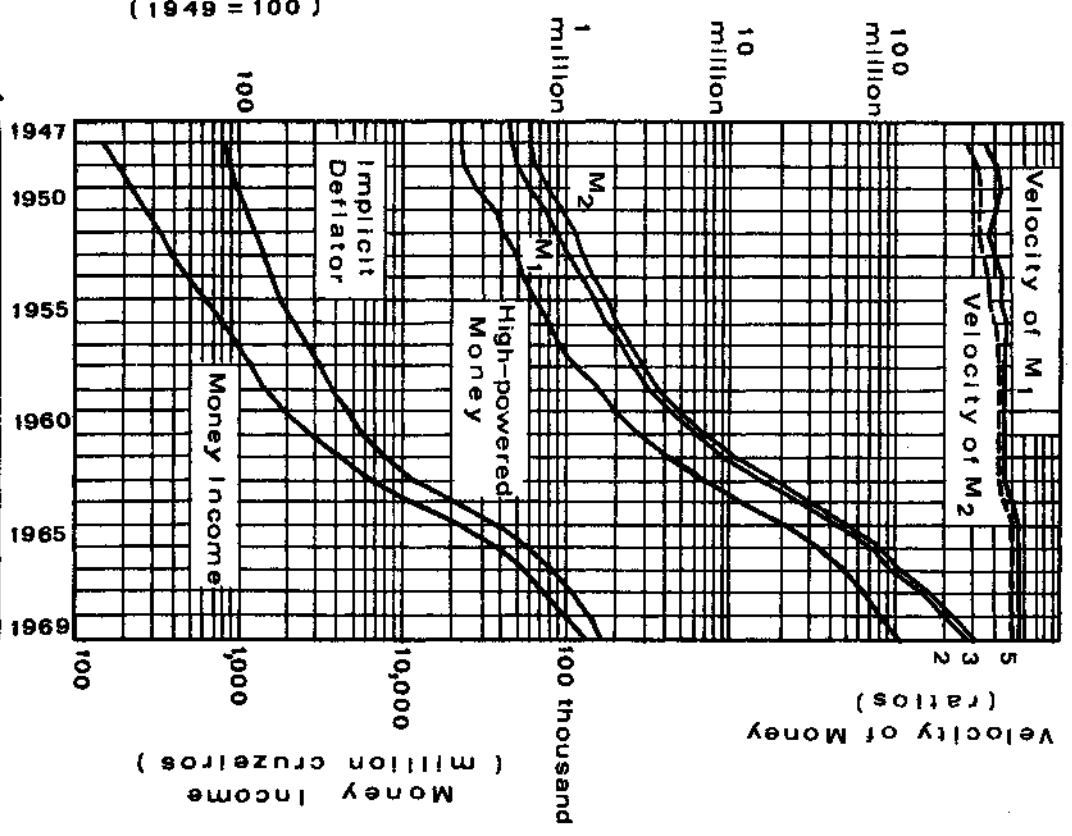
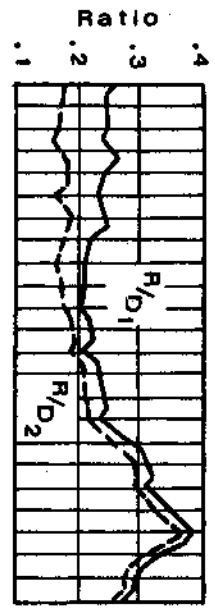
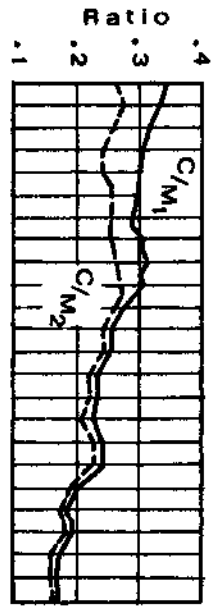
Money Stock, Income, Prices and Velocity in Brazil,
1870 - 1970





Implicit Deflator
(1949 = 100)

Money Stock (thousand cruzeiros)



Notes:

Prices: the cost of living index 1869-1930 was estimated by LOBO *et al.* on the basis of 9 staples consumed in the city of Rio de Janeiro (with 1919 weights). It seems to provide accurate information on the direction of price changes but overestimates the rate of inflation. See the criticism by NIGIA VILELA LUZ and CARLOS MANUEL PELÁEZ, *Economia e História: O Encontro dos Dois Campos de Conhecimento*, « Revista Brasileira de Economia », Special Issue in Celebration of the 100th Anniversary of the Independence of Brazil, July-September, 1972; between 1931 and 1946, the price index is that estimated by Vilella and Suzigan; the implicit deflator of the social accounts estimated by the Getúlio Vargas Foundation is used for the period 1947-1971.

Income: nominal GNP is used for the period 1920-1946 since NNP is not available; the nominal NNP computed by the Getúlio Vargas Foundation is used for the period after 1947.

Sources:

Prices: EULALIA LOBO *et al.*, *Evolução dos Preços e do Padrão de Vida no Rio de Janeiro 1820-1930*, « Revista Brasileira de Economia », October-December, 1971; NATHANIEL H. LEFF, *Estimativa da Renda Pessoal no Brasil no Século XIX com Base nos Dados sobre a Moeda* « Revista Brasileira de Economia », April-June, 1972; ANNIBAL VILLANOVA VILELLA and WILSON SUZIGAN, *Política do Governo e Crescimento da Economia Brasileira, 1889-1945*, Rio: IPEA/INPES, 1973.

Income: VILELLA and SUZIGAN, *op. cit.*; Getúlio Vargas Foundation.

Money: PELÁEZ and SUZIGAN, *A Política Monetária do Brasil, 1800-1973*.

TABLE 1
SOURCES OF CHANGE OF THE RATE OF GROWTH OF THE MONEY STOCK
OF BRAZIL 1869-1971

Money Stock	Average rate contributed by: ^a (per cent per year)				Relative contribution of: ^b (per cent)			
	Total (1)	High-Powered Money (2)	Currency Ratio (3)	Reserve Ratio (4)	Total ^c (5)	High-Powered Money (6)	Currency Ratio (7)	Reserve Ratio (8)
M ₁	11.86	11.08	2.05	-0.64	100	93	17	-5
M ₂	11.87	11.08	2.22	-1.01	100	93	19	-9

^a Computed by approximation to formula (1) in the text.

^b Columns (1) through (4) divided by (1).

^c The lines do not add to the total due to errors of approximation and rounding.

Source: Monetary data in CARLOS MANUEL PELÁEZ and WILSON SUZIGAN, *A Política Monetária do Brasil, 1800-1973*.

of the public), and R/D , the reserve/deposit ratio (behaviour of commercial banks). Friedman, Schwartz and Cagan derived the following equation:

$$\frac{d \ln M}{dt} = \frac{d \ln H}{dt} + (M/H)(1-R/D) \frac{d-C/M}{dt} + (M/H)(1-C/M) \frac{d-R/D}{dt} \quad (1),$$

where the rate of growth of money is broken down into contributions by high-powered money and the currency and reserve ratios. Using small case letters for the rate of growth of the money stock and for the contribution of each of the proximate determinants, the following formula can be obtained for empirical approximation:

$$m = h + c + r + e \quad (2),$$

where the error term, e , is relatively small and can be ignored. It is the formula used in the table.

The second set of columns, from (5) to (8), shows the relative contributions of the proximate determinants. As in the United States, high-powered money contributed approximately nine tenths of the increase of the money stock, whether defined as M_1 or M_2 . Similar to the European and American experiences, the contribution of the currency ratio was significant. An important conclusion arising from the analysis of the money stock and its proximate determinants is the continued decline over the long-term of the currency ratio showing the increasing diversification of the financial structure of Brazil. As in Europe, the process was accompanied by monetization of economic activities in spite of institutional restrictions.

Table 2 shows the average rates of growth of money and income velocity for several European countries in their formative years, the United States over a long-term period estimated by Friedman and Schwartz, and

TABLE 2

AVERAGE RATES OF GROWTH OF MONEY AND INCOME VELOCITY
FOR EUROPEAN COUNTRIES, THE UNITED STATES, AND BRAZIL
IN SELECTED PERIODS
(Per cent per year)

Country	M_1	M_2	Velocity of M_1	Velocity of M_2
England (1750-1811)	2.1	2.7	-0.6	-1.2
France (1803-1870)	2.2	—	-0.4	—
Italy (1880-1914)	3.2	—	-2.0	—
United States (1867-1960)	—	5.4	—	-1.0
Brazil (1920-1945)	10.7	10.5	-2.5	-2.5

Sources: CAMERON, *Banking in the Early Stages of Industrialization*; *Id.*, *Banking and Economic Development*; FRIEDMAN and SCHWARTZ, *A Monetary History of the United States 1867-1960*; PELÁEZ and SUZIGAN, *A Política Monetária do Brasil 1800-1973*.

Brazil 1920-1945, the earliest long-term period for which there are income accounts. The empirical regularity of long-term decline of income velocity concomitant with economic growth and industrialization is observed for all countries. The substantial difference in rates of monetary growth is partly explained by the different world events that characterized the various periods. As in many European countries and the United States, in addition, income velocity increased during the present postwar period. Between 1947 and 1971, the velocity of M_1 increased at the average yearly rate of 1.9% and that of M_2 at 2.6%.

The currency and reserve ratios behaved cyclically as in Europe and the United States, rising during the contractions and declining in the upswing of the business cycle.⁵ There was also the same co-variation of money, and income and prices observed by Friedman and Schwartz. The basic quantity of money identity fits the Brazilian experience 1920-1971 without errors, providing a test of the reliability of the data. In earlier periods, monetary data can be used to set probable limits to income growth. Finally, the factors of change of high-powered money and the ratios appear to have been independent of income and prices. However, the tautological nature of this analysis suggests that some caution is needed in its interpretation, as an empirical verification of the "neo-quantity theory of money" or of a one-way chain of causality from money into income and prices. Identification of pure cause and effect relationships is perhaps an impossible scientific task and even more so in economic history. In addition, the analysis focuses only on supply without regard for demand.

⁴ FRIEDMAN and SCHWARTZ, *A Monetary History* . . . , p. 5.

⁵ PELÁEZ and SUZIGAN, *op. cit.* For some comments and data on Italian experience see JON S. COHEN, *Italy, 1861-1914*, in Cameron, ed. «Banking . . . », pp. 83-7.

In contrast with European and American experience, however, the largest part of Brazilian monetary growth was absorbed by price increases. While the price level in the industrial countries of Europe and the United States declined over time, concomitant with significant increases in productivity, the Brazilian experience was characterized by chronic inflation and limited increases in productivity. In the period 1822-1913, prices increased at the average yearly rate of 3.4%, according to the only (precarious) index available,⁶ or at the rate of 1.0%, according to an index obtained by correcting the changes in the free market rate of exchange by English wholesale prices.⁷ During World War I prices increased at the average rate of 14.1% per year. In the period 1920-1945, the average rate of inflation was 1.9% per year. In the present postwar period, aggregate prices have increased at the average rate of 23% per year. There was only one short period in Brazilian history similar to that of Europe and the United States: between 1907 and 1913 prices declined at the average yearly rate of 0.9% and the historical records suggest that the economy expanded rapidly. Monetary and fiscal mismanagement has been the most important factor of long-run inflation. During most of its history, Brazil has been plagued by a chronic budget deficit financed by the creation of money. This has until recently been the most important factor in the increase of high-powered money and consequently of the money stock.

II. FINANCIAL INSTITUTIONS AND ECONOMIC DEVELOPMENT

The failure to reform the money markets has been an important factor in the long-term retardation of Brazil. This combined with other factors — such as a high rate of demographic growth, traditionally low investments in literacy and education, monopolistic policies to subsidize coffee that artificially concentrated resources in export activity, and the unfavourable environment for continuous transmission of technology and capital and labour in this century when the country first began its modernization — to prevent more rapid development.

In the 1840's and 1850's, a group of distinguished policy makers and entrepreneurs — headed by the Viscounts of Mauá and Souza Franco —

⁶ EULÁLIA MARIA LAHMEYER LOBO et al., *Evolução dos Preços e do Padrão de Vida no Rio de Janeiro, 1820-1930 — Resultados Preliminares*, «Revista Brasileira de Economia», October-December, 1971. See the criticism by NÍCIA VILELA LUZ and CARLOS MANUEL PELÁEZ, *Economia e História: O Encontro dos Dois Campos de Conhecimento*, «Revista Brasileira de Economia», Special Issue in Celebration of the 150th Anniversary of the Independence of Brazil, July-September, 1972 and also the independent excellent estimates of MIRCEA BUESCU, *300 Anos de Inflação*, Rio: APEC Editora, 1973.

⁷ NATHANIEL H. LEFF, *Estimativa da Renda Provável no Brasil com Base nos Dados sobre a Moeda*, «Revista Brasileira de Economia», April-June, 1972.

attempted to develop private banking with issue privileges following the experience in Scotland and other European countries which they had carefully studied.⁸ The leaders of this school, the *papelistas* (or advocates of paper money and banks of issue), were defeated by another school, the *metalistas* (metallists),⁹ who proposed that there should be a monopoly of issue (and even of all banking services) for the government supported Bank of Brazil, as well as a purely metallic money stock. Although Brazil did not obtain metallic money, the Bank of Brazil received extraordinary privileges that permitted it to absorb nearly all of the private banks of issue. Since its establishment, this institution has accounted for nearly one third of the banking services in Brazil, and has been responsible for the financing of the budget deficit and for the country's inflation. In some respects, this experience is an extreme example of the restrictive consequences of the policies also followed by the Bank of England, the Bank of France, and by traditional banking structures in those countries.

The effort to develop banking and financial institutions in Brazil has been constantly frustrated because of the general acceptance of the ideas of the metallist school in economic thought and in policy making. For two years, at the beginning of the Republic, 1889-1890, and following thirty years of monetary austerity and restrictions of banking, a law authorized the establishment of banks with the right of issue. The reform was an attempt to imitate the European experience. But the apparent success of the reforms of minister Joaquim Murinho, 1898-1902 — actually procyclical policy during a business contraction¹⁰ — gave a new impetus to metallism which was implemented, or at least was nearly always intellectually successful, during the first four decades of this century.

Brazil entered the present postwar period with an entirely inadequate banking structure, consisting of a large government-controlled bank which

⁸ BERNARDO DE SOUZA FRANCO, *Os Bancos do Brasil*, Rio: Typographia Nacional, 1848, the classic statement of these views. See PELÁEZ and SUZIGAN, *op. cit.*, chaps. 3-4, and DÉNIO NOGUEIRA and CARLOS MANUEL PELÁEZ, *Introdução: Ensaio sobre a Economia Brasileira, 1822-1972*, «Revista Brasileira de Economia», July-September, 1972.

⁹ The most important metallist statement is in Brazil, Ministério da Fazenda, *Relatório da Comissão de Inquérito Nomeada por Aviso do Ministério da Fazenda de 10 de Outubro de 1859*, Rio: Typographia Nacional, 1860. This report of the commission of monetary inquiry followed the work of nineteenth century economists such as HERMAN HEINRICH GOSSEN, *The Laws of Human Relations*, translated by Rudolph C. Blitz, with an Introductory Essay by Nicholas Georgescu-Roegen, New Jersey: Augustus M. Kelley, forthcoming. See «Chapter XX. The Nature of Money and Monetary Reform» in the new scholarly edition and translation by Professor Blitz.

¹⁰ CARLOS MANUEL PELÁEZ, *As Consequências Econômicas de Ortodoxia Monetária, Fiscal e Cambial no Brasil, de 1889 a 1945*, «Revista Brasileira de Economia», July-September, 1971, pp. 5-82; Id., *Análise Econômica do Programa Brasileiro de Sustentação do Café, 1906-1945: Teoria, Política e Medição*, «Revista Brasileira de Economia», October-December, 1971, pp. 5-212.

controlled one third of all banking services, and a group of large traditional banks which shared nearly all of the remaining business. In a sense this is not a unique experience since these failings were also present in England and Europe.¹¹ A comparative historical analysis, as proposed by Professor Cameron, shows how futile it is to ignore the nature of the development of the presently industrialized countries in any analysis of the underdeveloped economies.

III. CONCLUSIONS

There are four general conclusions on the long-term Brazilian monetary experience.

First, the same empirical regularities of monetary growth observed for the United States by Friedman, Schwartz and Cagan were present in Brazil's evolution. The growth of the money stock in Brazil was not accompanied by increases in productivity, as in Europe and the United States, but rather was absorbed by inflation. Yet the behaviour and interaction of monetary variables was quite similar even in a context of underdevelopment and chronic inflation.

Secondly, the *qualitative-institutional* analysis of monetary history developed for the European countries by Professor Cameron is enlightening. The Brazilian experience provides substantive arguments on how restrictions of banking and mismanagement of monetary policy can prevent rapid growth, resulting in chronic inflation. In fact, it is significant that Brazil's long-term economic evolution has been best understood by social historians working in the frontiers of economic history¹² while "development economists" have confused even the most basic issues.¹³ The most fruitful path seems

¹¹ The relevance of the economic history of the industrial countries for presently developing areas has been emphasized by Professor RONDO E. CAMERON, *Some Lessons of History for Developing Nations*, «American Economic Review», May, 1967, reprinted in Peláez, ed., *Essays on Coffee and Economic Development*, translated by Magnolia Maciel Peláez, Rio: Getúlio Vargas Foundation for the Brazilian Institute of Coffee, English and Portuguese versions, 1973. See also the perceptive essay by Professor CAMERON, *Introdução: Origens Históricas do Subdesenvolvimento Contemporâneo*, «Revista Brasileira de Economia», October-December, 1972, Special Issue in Celebration of the 150th Anniversary of the Independence of Brazil.

¹² STANLEY J. STEIN, *The Brazilian Cotton Manufacture: Textile Enterprise in an Underdeveloped Area, 1850-1950*, Cambridge, Mass., Harvard University Press, 1957; WARREN K. DEAN, *The Industrialization of São Paulo, 1880-1945*, Austin, Texas: University of Texas Press, 1969. They are partially reprinted in PELÁEZ, ed., *Essays on Coffee and Economic Development*. A critique of the narrow approach of the development economists is in my *História da Industrialização Brasileira*, with Foreword by Octávio Gouvêa de Bulhões and Dênio Nogueira, Rio: APEC Editora, 1972.

¹³ For a survey of research on the economy of Brazil 1822-1972, see NOGUEIRA and PELÁEZ, *op. cit.*

to lie in the combination of qualitative and quantitative analyses developed by Joseph Schumpeter.

Thirdly, a comparative analysis of the Brazilian, European, and American experiences shows the futility of the conventional view that the histories of the industrially developed countries are entirely irrelevant for the analysis and solution of current development problems in the underdeveloped countries. The histories of Europe, the United States, and Japan provide the only available empirical evidence of successful modern economic growth and to ignore this experience is equivalent to abandoning all links between theory and reality. In the underdeveloped western countries such as Brazil, mounting evidence suggests greater similarities in factors of retardation than was earlier apparent. In this respect, the evolution of Brazil's financial structure constitutes a "counterproof" of the theories of Professor Cameron for the European industrial and "late comer" countries that extreme restriction of financial intermediation accompanied long-term backwardness. Consequently, European monetary history suggests many useful approaches for probing long-term performance in less developed countries.

Fourthly, there are some lessons of history that in a general way outline the direction for constructive policy making in the future. In the history of Brazilian economic thought, there has only recently been any *meaningful* work on the *monetary problems of economic development and price stability*. This was the basic objective of the classic contribution by Professor Octavio Gouvea de Bulhoes in 1950, who suggested the institutions and policies that could provide «economic expansion without increases in prices».¹⁴ This was a set of long-term policies and institutions, in the tradition of Viner, designed to bring stable progress in Brazil. There was an attempt to implement these policies and establish these institutions in the period 1964-1967. In the design of future aggregate policy in Brazil, there is a need to return to the original *long-term* criteria of the stabilization programme, such as investments in literacy and education, export promotion, conditions for market orientation and the easy transmission of technology, as well as monetary and fiscal policies conducive to growth without inflation. But there must be also a meaningful emphasis on distributing equitably among the different classes of society the burdens of inflation control and saving as well as the benefits of prosperity. Modernization in Brazil cannot be dictated by policy makers. It requires the efforts of an entire society of more than one hundred million people.

¹⁴ OCTÁVIO GOUVÊA DE BULHÕES, *A Margem de um Relatório*, Rio: Edições Financieiras, 1950. The parts relevant for these purposes are reprinted as «Monetary Problems of Economic Development with Price Stability», in Peláez, ed. *Essays on Coffee and Economic Development*.