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Publication Date

1987-09-28

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Working Paper 8753

MARKET FORCES OR GROUP INTERESTS:
INCONVERTIBLE CURRENCY
IN PRE-1914 LATIN AMERICA

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September 28, 1987

Key words: Exchange rate inconvertibility, monetary policy,
Argentina, Brazil, Chile.

Abstract

This paper examines critically the explanation of exchange inconvertibility in Argentina, Brazil and Chile before 1914 as a result of special interest influence in each country. In particular, it draws attention to the role of exogenous balance of payments factors in influencing exchange rate policy and levels. It concludes by considering some of the advantages of inconvertibility for peripheral countries in the late nineteenth century world economy.



Introduction

Between 1880 and 1913 the gold standard reigned on a global scale. Not only did the United States resume convertibility and a newly unified Germany adhere, but peripheral countries like Russia and India began to join as the period progressed. Three Latin American countries, Argentina, Brazil and Chile, were prominent exceptions to the rule. Their monetary histories were marked by inconvertibility, exchange rate variability and inflation. Their experience with the gold standard was partial and limited.

In each of the three countries, particular explanations have emphasized the dominant role of exporters and debtors who stood to gain from a depreciated currency. These were part of the narrow elite who governed the countries. Their conservatism did not carry over to monetary orthodoxy, but led them to favor inflation and a devaluing exchange rate.

As A. G. Ford concludes for Argentina, "Furthermore, the dominant political interests, the export producers and landowners, were not adversely affected by a depreciating exchange; rather a depreciating exchange shifted the distribution of a given real income in their favour whilst an appreciating exchange moved it against them."¹ "These distributive consequences of the changing value of money are of the utmost importance for an understanding of the actions of the Argentine Congress, which reflected the wishes of these politically powerful interests in monetary matters."²

Winston Fritsch summarizes the position for the case of

Brazil: "The alleged unrestrained exercise of the political muscle of the coffee interests in shaping economic policy was illustrated, according to this traditional view, by the notions that the Executive was always prepared to lend support to coffee valorization schemes and that the secular depreciation of the milreis resulted from politically motivated decisions aimed at benefitting the leading sector of the export-producing bourgeoisie."³

Finally, Frank Fetter's classic Monetary Inflation in Chile enshrined the view that the explanation of inflation in that country "only can be found in the existence of a heavily indebted class within the landholding aristocracy of the country and in the predominance of that class in an irresponsible Congress."⁴

These traditional interpretations of conscious and effective manipulation of policy in behalf of narrow purposes have not gone unqualified. The independent role of exogenous shocks to the balance of payments was early addressed and recognized, especially in the Argentine and Brazilian cases. And there have been analyses of the way in which political power was wielded in the three countries.⁵ Yet there has been no systematic comparison of these three experiences in order to gauge the degree to which exchange rate flexibility represented a rational, if not inevitable, policy for these primary export economies. One of the few explicit comparisons, at the time of the First World War, did group the three countries together: "The period from 1904 to 1910 in Chile, from 1890 to 1900 in Brazil, and from 1885 to 1891 in

the Argentine Republic are typical cases of the same class."⁶ But the focus is exclusively upon monetary policy with its consequences for domestic inflation and the premium on gold, and unrelated to the external accounts.

Section I briefly sketches the evolution of these economies in the last part of the nineteenth and beginning of the twentieth centuries, with an emphasis upon money and banking. Section II presents statistical tests of the relative influence of domestic monetary expansion and balance of payments effects upon the exchange rate. In addition, I discuss the determinants of monetary expansion and the role of group pressures. Section III concludes by relating the considerations determining the optimal exchange rate regime to the historical cases.

I

Stylized History: Argentina

Argentina at the beginning of the 1880's was entering upon a decade of rapid settlement, foreign borrowing, extension of railways and infra-structure investment, and economic transformation from a pastoral to a grain economy. Integration into an expanding world economy offered optimistic prospects for a resource rich, low density peripheral country.

Monetary accommodation eventually turned out to more than keep pace with real growth. Early efforts to centralize and standardize coinage and to withdraw from circulation depreciated bank notes started, however, in an entirely different vein. By

1883, it could be said that "Argentina for the first time had a practicable monetary system."⁷ Just two years later, at the beginning of 1885, convertibility was suspended; the initial two year moratorium was to continue until 1899. Financial crisis, although short and without great real impact, made it impossible for banks not only to honor their commitments, but also required new inconvertible issues. An adverse turn in the balance of payments, as a result of diminished enthusiasm for new Argentine public offerings, was sufficient to deplete the banks of their reserves and to inflict large losses as the exchange rate was under pressure.

Gold rose to a premium of close to 40 percent and stayed there through 1887. In that year a new banking act was passed. Its common title, the "Free Banking Law", conveys its expansionary consequences. Its formal name, the "Law of National Guaranteed Banks", expresses its intent of providing a supervised national banking system to attend to legitimate credit requirements. The scheme was a modification of the United States example. Banks would purchase national gold bonds that would serve as backing for the notes emitted. The gold paid in would remain on deposit for two years in the Bureau of Inspection of Banks; thereafter the national government could use it to service the external debt. Twenty banks applied for these new privileges, of which 13 were official provincial institutions. In order to secure the needed gold for the purchase of bonds by their banks, provinces floated external loans in London, thereby alleviating the need for the Federal government to borrow and concealing its

own deteriorating fiscal situation.

The problem with the law was not only corruption and political favoritism that led fully a third of the bonds not to be paid in gold as they should have been and for emissions to exceed their legally mandated ratio to holdings. There was also no criterion for the size of the expansion. In the event, there was a lack of demand for the much augmented supply of fiat money; for while the notes might be backed by gold bonds, they were inconvertible. Between 1887 and 1890, fiduciary circulation almost trebled, and the gold premium rose to 209 percent in April of the latter year. Figure 1 provides a good view of the close correlation.

Contracting the currency to counteract the exchange depreciation was not a feasible solution. Instead it was necessary to rely on new borrowings abroad to seek to provide a stabilizing influence. But the London Market could not absorb all the Argentine paper that was being placed. The Baring Panic was the final signal of the lack of creditworthiness. With no further capital inflow, not only was Argentina unable to service its external debt, but its internal credit market was in danger of collapse. To save the banks, still new issues were necessary.

In the midst of the financial crisis, a revolution turned out the President. It did not save the two largest banks, the Banco Nacional and the Banco de la Provincia de Buenos Aires, from liquidation in April 1891 or the premium from reaching 364 percent in October. In the same month, the new Banco de la

ARGENTINA

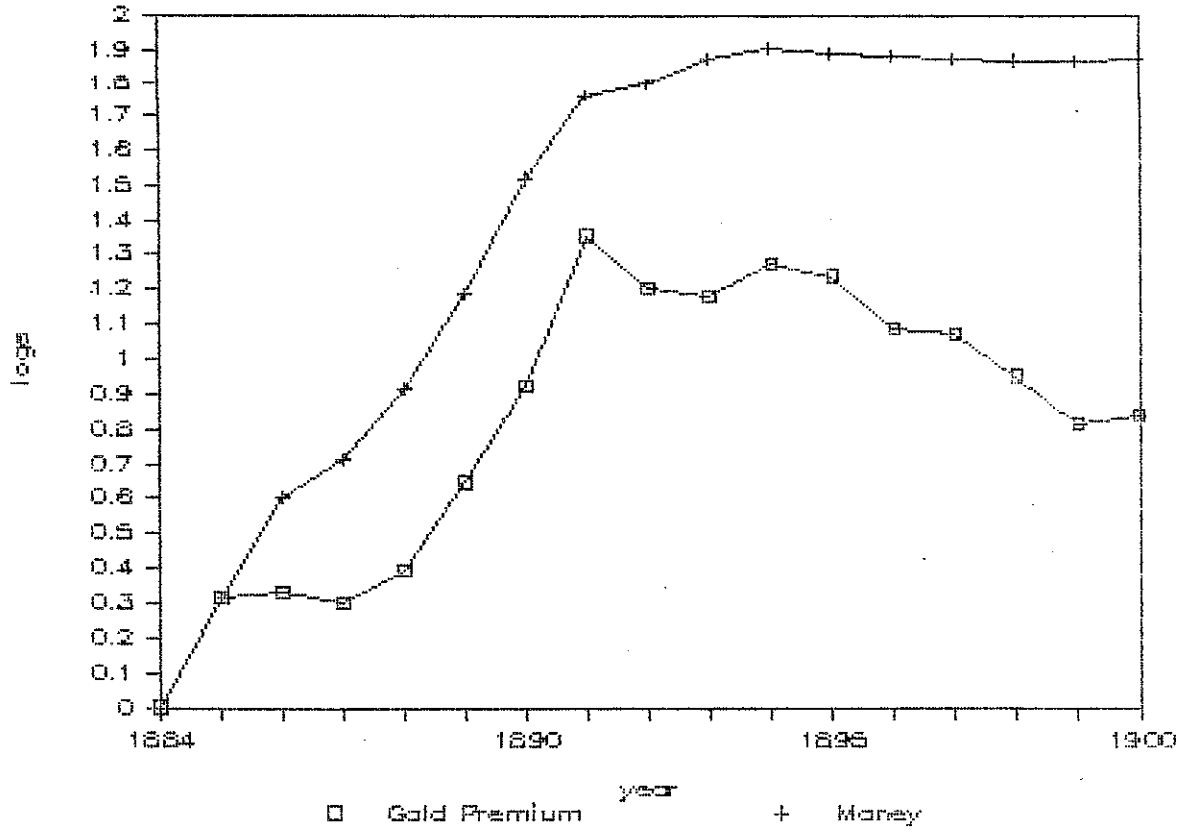


Figure 1

circulate internally, and gold imports and exports did not therefore create direct increases or decreases in the monetary base.

The period from the turn of the century to the First World War was one of rapid economic growth. Estimates of GDP record an average annual rate of 6.3 percent between 1900-04 and 1910-14. The quantum of exports increased by 4.2 percent, but the value by 7.4 percent. Grain and grain products on the eve of the war represented half of export earnings. Net immigration recorded a new surge after 1905. Foreigners amounted to some two-fifths of the labor force. And something like half of the capital formation undertaken was foreign financed. Argentine integration into the world economy accompanied and benefited from the pre-war international expansion.

Stylized History: Brazil

Brazil entered the 1880's in the last years of a downturn in the coffee cycle. Increases in the quantity of exports were negated by declining prices. By the end of the decade, however, the economy was in full expansion. Coffee prices and export receipts rose. Foreign investment revived and underwrote railway and infrastructure investment. Slavery was abolished, increasing demand for free labor in Sao Paulo, the location of the new coffee boom. Immigration satisfied the need. On November 15, the Empire fell and a Republic was proclaimed.

Brazil entered the period with a primitive monetary and banking system. Inconvertibility reigned, with the exchange rate far from the legal par value of 27 pence per milreis. Diverse

Nacion was established on the basis of still another issue of new paper money. Such efforts did not avert a real decline in income and imports to equilibrate the balance of payments.

Through the rest of the 1890's, recovery gradually occurred. External debt service was first covered by a special loan, one of whose conditions was contraction of the currency, with which the Argentine government did not comply. When the Funding Loan proved inadequate, another agreement was reached, the Arreglo Romero in 1893, providing for some reduction in interest payments for five years. In the same year, the domestic currency reached its peak and remained stable for the rest of the decade. The basis for renewed real growth was the eventual increase in exports that between 1890 and 1899 almost doubled. So did population. Renewed confidence allowed private firms to borrow again after 1895, although the offsetting flows of interest exceeded new capital flows for the rest of the decade. The gold premium gradually diminished, falling continuously from 1895 to reach 125 percent in 1899, the year of peak export.

In 1899, a conversion law was passed to stabilize the peso at its market level. The law provided for the Caja de Conversion to purchase or sell paper for gold at a fixed premium of 127 percent over the former par level. A redemption fund in gold was to be accumulated to back the extant issue. New currency was to depend upon deposit of gold. Argentina thus effectively returned to the gold standard at the beginning of the twentieth century and maintained convertibility down through 1914, when again it left until 1927. The only difference was that gold did not

BRAZIL

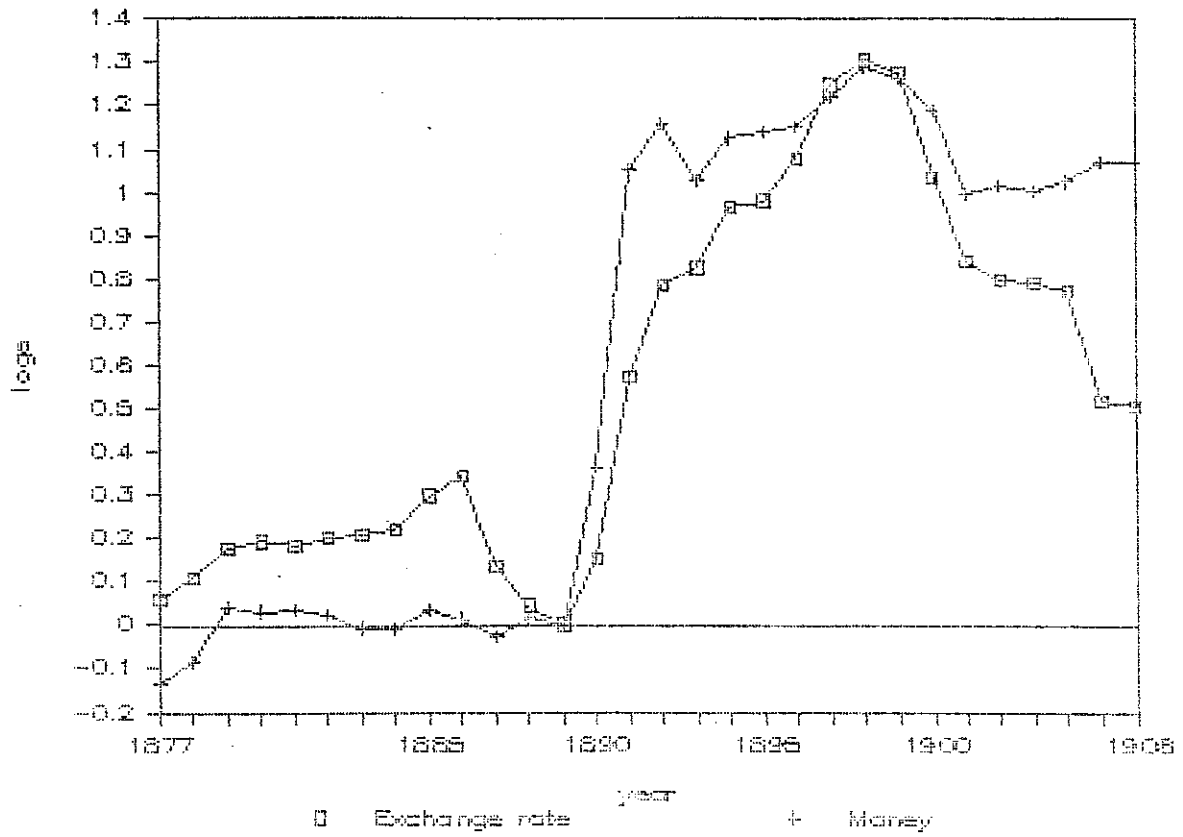


Figure 2

bank notes circulated, but Treasury issue made up not only the bulk of the notes -90 percent- but also two-thirds of the money supply. Banking was highly concentrated in Rio de Janeiro, and the Banco do Brasil was responsible for half the deposits. The chief objective of monetary policy was to allay crises of illiquidity through new issues.

Monetary reform emerged as a central issue at the end of the 1880's. It did so as a result of the conjunction of three real forces: the diffusion of wage labor, the expansion after 1885 and the succession of favorable external accounts. "These three factors came to create the necessity of a numeraire for which the existing system was not equipped, and were, in the last analysis, the determinants of reform."⁸

Two conflicting views surfaced concerning the shape of the reform. One sought to take advantage of the improvement in the exchange rate to implant the gold standard; the other wished to extend banking more uniformly throughout the country and to provide a means of payment more elastic than the extant system. Both accepted the principle of banks of issue. The need for more credit led to eventual compromise: banks could issue notes based on government bonds, an idea again deriving from the United States National Banking Act, as well as with gold backing.

This plan had hardly been implemented before it was made obsolete by a record monetary expansion under the newly established Republic. A much larger banking system was created to satisfy the Brazilian need for both short and long term credit.

Inconvertibility was explicitly accepted: the criterion for the adequacy of monetary emission and bank deposits was the legitimate requirements of domestic production and commerce, not the exchange rate. Under the impact of a trebling of the money supply between the end of 1889 and the end of 1891, the largest part emanating from expanding bank deposits that accompanied real growth and inflation, the exchange rate depreciated by 50 percent. Figure 2 provides a pictorial representation.

These domestic developments were complicated by the Baring Panic that reduced British foreign investment not only in Argentina but also Brazil. But a continuing good performance of exports enabled Brazil to continue to service its foreign debt and to extend its domestic expansion until later in the decade. Indeed, two loans were successfully floated in the London market.

The magnitude of the exchange rate depreciation imposed monetary discipline from 1892 forward; there was a contraction of some 10 percent in that year, followed by modest growth until 1898. In the latter year, a deteriorating balance of payments forced Brazil to negotiate a Funding Loan consolidating debt, postponing amortization and providing the means by which to continue to pay interest owed. One of the conditions of the arrangement was reduction of the domestic money supply; unlike Argentina in 1891, Brazil complied. Finance Minister Murinho ushered in a deflationary period extending to 1902, during which the money supply fell by almost a quarter. Even a major financial crisis in 1900, leading to bank failures and government intervention to save the Banco da Republica, and provoking de-

clines in real activity, did not deter the continuing effort to follow more orthodox rules. Under their impact, and a much improved balance of payments to which rubber and increased coffee exports contributed, the exchange rate recovered by more than 50 percent from its 1898 low, and had returned to its 1892 level.

The new administration of Rodrigues Alves, while committed to continuing appreciation until par was again achieved, provided a more active fiscal stimulus. Investments in infra-structure, including urban and port development, again were undertaken. The improved condition of capital supply in London permitted such activities to proceed without reliance upon increases in the money supply. Such capital inflows also strengthened the milreis, and as in Argentina, led to the adoption of a conversion system to prevent the exchange rate from further appreciation.

The difference in the Brazilian case was the relationship of this monetary policy to the simultaneous effort to stabilize the price of coffee. The prospect of a super harvest in 1906/07 and substantial overhanging world stocks of coffee led the three Brazilian producing states, Sao Paulo, Rio de Janeiro and Minas Gerais, to implement an agreement to restrict supply to assure a minimum export price. An export tax and external loans would finance the costs of holding stocks. But since the price was fixed in terms of foreign exchange, the domestic price was still subject to variation in the exchange rate; hence the proposal for the Caixa de Conversao.

After much debate, the plan was approved and went into

operation in December 1906. The conversion facility attracted gold deposits until the maximum legal limit of L20 million was attained in 1910. At that point, further exchange appreciation was suggested, but rejected in favor of amplifying the fund to permit further monetary expansion. In August 1914, on the eve of the war and having lost substantial reserves already by reason of adverse external performance and the need to finance domestically the public deficit, the Fund ceased to defend the exchange rate. Nine days later a new inconvertible Treasury issue was authorized.

Brazilian growth in the decade before the war was rapid, and benefited from the expanding international economy and foreign investment. But that was far from the whole story. Exports increased in value by 5.4 percent annually, but only by .1 percent in volume.⁹ What was noteworthy was the rapid growth of domestic industry; import substitution had taken root. The dimmer perspectives of Brazil as an export producer, given its product mix, had stimulated an already evident diversification.

Stylized History: Chile

Chile entered the decade of the 1880's a victor in the War of the Pacific against Peru and Bolivia. The nitrate deposits gained in the consequent territorial annexation proved an increasing source of export revenues, soon coming to dominate copper and wheat. The War also apparently stimulated domestic industrial production, for the familiar reasons of rising demand and limited imports. Thereafter, manufacturing responded to the

internal demand created by the expansion of the mining economy. Traditional and export agriculture receded. The nitrate industry grew at a rate of more than 7 percent a year between 1883 and 1913. Integration into the world market provided the dynamic for 30 years of growth, modernization and urbanization. Foreign investment underwrote public investment in infrastructure and railway construction. Chile trailed only Argentina, Brazil and Mexico in receipts.¹⁰

Chile also entered the decade of the 1880's fresh from decreeing inconvertibility in July 1878. This dramatic action occurred "in an extraordinary and secret session, held on the night of July 22, for the purpose of approving a bill presented by the Executive...."¹¹ It forestalled a run on the banks, which only 26 days earlier had agreed to make a large loan to the government to cover its deficit. The action thus taken anticipated the inevitable: with declaration of war in April 1879, new government expenditures were needed and new emissions were issued.

Finances improved after the war, not least because of the new revenues available from nitrate exports. But monetary expansion now emanated from increases in bank notes and deposits. Exports, after reaching record levels in 1883, declined. So did the rate of exchange. At the beginning of 1887 the peso was quoted at 23d. compared to rates almost twice as high ten years earlier. In response, the government proposed retirement of some of its notes as well as restrictions upon the issue of bank notes; to provide increasing revenues, customs duties were

raised. In fact, between 1887 and 1890, banks managed to increase their circulation faster than the government retired Treasury notes: the net result was a total increase of almost a third. Figure 3 affords a visual impression of this and later monetary acceleration.

The Civil War of 1891, pitting the President against Congressional dissidents, had the inevitable effect of placing the government in an expansionary position once more. In his losing cause, President Balmaceda drew down the conversion fund; forced a non-interest bearing loan upon the banks; and doubled the outstanding issue of Treasury notes. The successor government had little alternative but to assume responsibility for the liabilities. But while doing so, it also made a commitment to end the regime of inconvertibility. At the end of 1892, a new law provided for adherence to a gold standard at a par rate of 24d. to take effect in 1895. Since the current rate was 18d., a significant deflation apparently loomed. Banks were motivated to reduce their outstanding notes in order to avoid their later conversion into gold. In the face of this development, the government temporarily retreated from retiring its own currency and even entered upon a new issue.

No wonder the exchange market doubted implementation. Instead of appreciating, the rate declined further. At the beginning of 1894 the peso had sunk to 13d. and fell to 11d. within a few months more. The fear of generalized and immediate bank failure with establishment of convertibility at 24d. finally led

CHILE

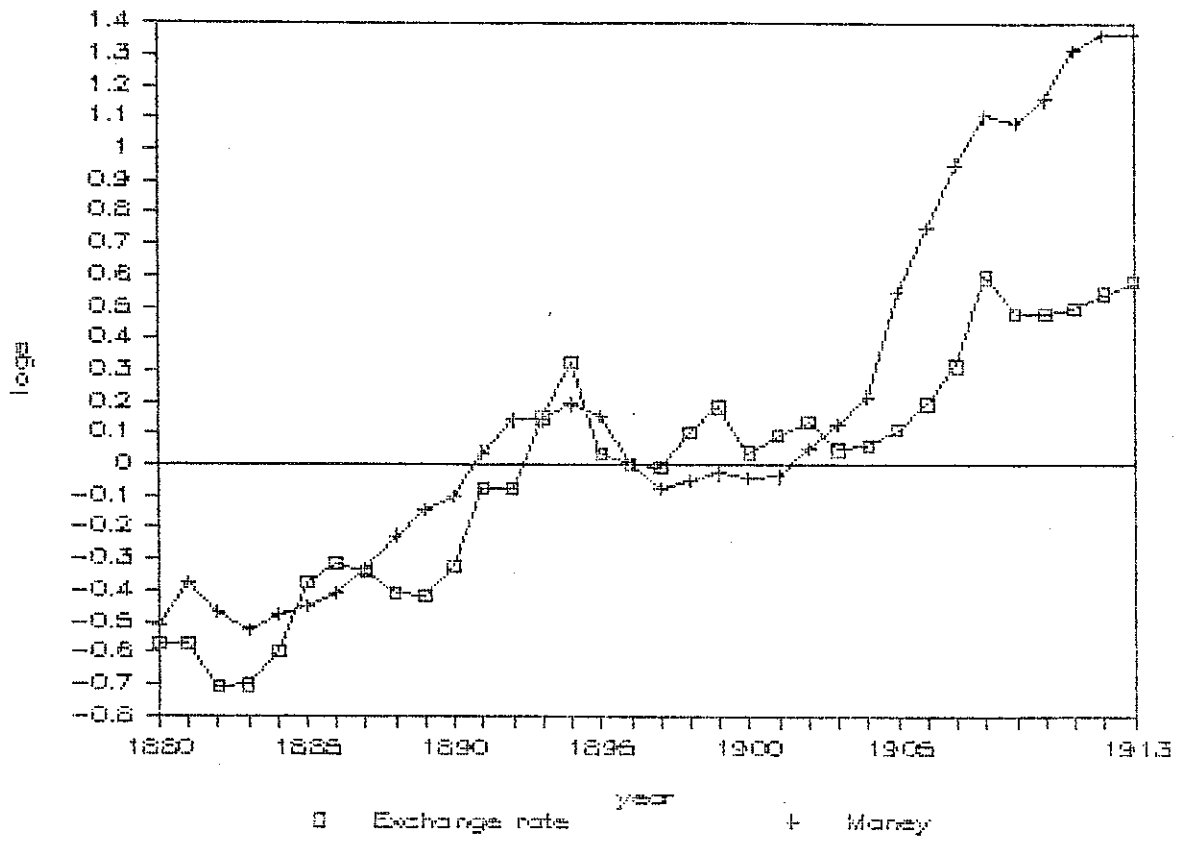


Figure 3

to the definitive Conversion Law of February 1895 providing for conversion at 18d. four months after its passage. The margin between the market rate of 15d. and the legal one remained large. To ease the situation of the banks, the government authorized a loan of L2,000,000 -Chile retained access to the London market even in the 1890's- with which to meet the conversion of bank notes into gold.

The experience with the gold standard was to be brief and unhappy. There was a commercial crisis of considerable proportions in 1895; several banks failed, and interest rates rose. The government persisted, to the point where adherents of the policy could assert that conditions had improved in 1897 and that the conversion had been successfully made. Yet in July 1898, convertibility came to an end under the pressure of a run on bank deposits. Partisans of orthodoxy consider that result the creature of political circumstance, uncertainty created by conflict with Argentina, and even conspiracy. There is patent resentment at the failure. Frank Fetter bears quotation: "It seems clear that the run on the Bank of Chile was the result of a concerted opposition, not to say a conspiracy, against the gold standard, directed by a small group..."¹²

Under the impulse of a rising nitrate price after 1898, exports and the economy recovered. The premium on gold diminished, but appreciation caused none of the adverse consequences associated with the credit stringency of conversion. By 1904, the rate of exchange was close to par and the moment for convertibility was propitious in the midst of obvious prosperity. The

response was to be the opposite: a frank decision to authorize a new large issue in December 1904. It was justified on the grounds of an inadequate and inelastic currency. For the next three years, inflationist tendencies were to prevail and a speculative boom ensued, not unlike the experience of Argentina in the late 1880's and Brazil in 1890 and 1891. And not unlike those cases some real development occurred amidst the frenzy.¹³

Inflationary sentiment reached its peak in 1907. Thereafter, the balance shifted. With the exchange rate now reduced to around 11d. for several years, as demand for new emissions were again voiced in 1912, the government voted a new Oficina de Emision, related to the Argentine and Brazilian versions. The major difference was that banks were the intermediary. Upon their deposit of gold they were given pesos at the rate of 12d., pesos which carried the right of conversion. As it turned out, this legislation especially favored foreign banks that could easily make the gold deposits in London and thereby enhance their competitiveness in offering convertible pesos in Chile. Before further progress could be made, the First World War intervened.

II

Testing the Monetarist and Structuralist Views

In all three countries, there was clear association between increases in the money supply and depreciation of the exchange rate. Figures 1 to 3 have made that point graphically. Contem-

poraries did not fail to notice and to invoke the authority of David Ricardo, who had argued the same case early in the century in the aftermath of the Napoleonic Wars. For Francisco Belizario, Brazilian Minister of Finance in 1886, "the value of paper money depends on its quantity....; the only criterion is the state of the exchange." Since "depreciation [is] a consequence of the excess of paper money, reducing its quantity will increase its value."¹⁴

The model underlying these conclusions consists of two simple equations, a demand for money and purchasing power parity:

$$(1) \quad P/P = M/M - ki - gY/Y$$

$$(2) \quad P/P = P^*/P^* + ExR/ExR$$

where P/P is the domestic inflation rate, P^*/P^* is the foreign rate, M/M is the rate of change of the money supply, i is the nominal interest rate, and Y/Y is the growth of real product. Substituting the rate of domestic inflation for the nominal interest rate, and assuming that the rate of growth is a constant, we derive the following equation for statistical estimation: $\ln ExR = (1/1-k) \ln M - \ln P^*$.

If under the gold standard the domestic money supply is endogenous, under the inconvertible standard the exchange rate adjusts to maintain internal and external equilibrium corresponding to different rates of monetary issue. Real and monetary spheres are independent. The real exchange rate and the level of relative income are determined by technology, tastes, etc. While they may change, they do so only gradually. Movements in the exchange rate are a monetary phenomenon.

Against this position, contemporaries argued another, based upon the balance of payments. Fetter summarizes for Chile what also holds for the debate in the other two countries. "The theoretical defense of the supporters of paper money was founded in the argument of the balance of trade: the exchange rate is determined exclusively by the relation between exports and imports, or in the most erudite form that such an argument may take, by the relation between international credits and debits."¹⁵ Such a concern for the state of the balance of payments, and its cyclical vulnerability from variations in export demand and capital inflows, merits more serious attention than he was inclined to give. Real exchange rates cannot be regarded as fixed, but rather will have to vary to maintain external equilibrium. Domestic credit expansion may feed animal spirits and spill over into increases of real output as well as influence domestic prices. Strict separability between monetary and real events disappears.

A simple model of simultaneous internal and external equilibrium is described in the Appendix. What follows from explicit consideration of the requirements for external equilibrium is not the irrelevance of domestic monetary policy, but rather the need to include export receipts and capital inflows as additional determinants of the exchange rate. An alternative structuralist equation for the estimate of the exchange rate then reads: $\ln ExR = a + b \ln M + c \ln P^* + d \ln X/P_m + e (Cap - rD)$, where X/P_m is import capacity and $(Cap - rD)$ measures net resource inflow

from abroad. The elasticity on the money supply and foreign price remain positive and negative respectively, while d and e are expected to have a negative influence on the exchange rate, measured as domestic currency per unit of the foreign. The terms of trade is also tested in lieu of export earnings as a determining variable.

Since this second equation conveniently nests the first, the test of the influence of the balance of payments reduces to whether the two variables measuring its contribution add significantly to the statistical explanation of the exchange rate. That means comparison of the exclusively monetary equation with the more comprehensive one. Table 1 provides the results for all three countries during their periods of adherence to an inconvertible exchange regime.¹⁶ The estimated equations lead to two clear conclusions.

First, for each country at least one, if not both, of the balance of payments variables are statistically significant. Eliminating the insignificant balance of payments variable, when applicable, the conventional F-test establishes the statistical relevance of the inclusion of the balance of payments as a determinant.¹⁷ Its influence is strongest in the case of Argentina, and weaker for the other two. For Brazil, measures of the net capital inflow do not yield the expected results, and for Chile the import capacity variable, although of correct sign, has a small elasticity in addition to being statistically insignificant.

Second, the elasticities on the domestic money supply fall

Table 2
Sources of Exchange Rate Change
(percent)

	Exchange Rate Change ^a	Contribution ^b of		
		Money Supply	Balance of Payments	International Prices

Argentina				
Depreciation				
1884-1889	65	117.3	-22.4	9.8
1889-1891	71	49.2	17.1	0
Appreciation				
1891-1900	52	-18	63.1	9.1
Brazil				
Depreciation				
1889-1892	79	92.5	-14.4	6.5
1892-1898	52	16.1	7.5	10.4
Appreciation				
1898-1906	80	17.2	24.4	20.7
Chile				
Depreciation				
1882-1889	29	75.9	11.7	74.3
1889-1894	75	29.7	5.4	24.5
1904-1908	53	110.4	-6.3	-10.9
Appreciation				
1894-1897	34	53.6	-12.4	-6.6

Source: Table 1.

^a measured as change in logarithm.

^b measured as relative percentage of total exchange rate change.

short of the approximate unit value the monetary approach suggests. Most typically, one can reject statistically a value of one for the elasticity. Rather they fall in a range of .6 to .7; the money supply thus influences nominal exchange rates much less than proportionately. More than a simple price effect is implied.

On both counts, a more complete view of exchange rate determination, and of the role of credit in these peripheral economies, is indicated. Table 2 amplifies this point by assessing the quantitative contribution of domestic monetary expansion versus international prices and the balance of payments during the principal episodes of depreciation and appreciation in the three countries.

As a general rule, during periods of large depreciation, increases in the money supply play the dominant part. Thus in 1884-89 for Argentina, in 1889-92 for Brazil and in 1904-08 for Chile, changes in the money supply account for almost all of the observed change. The balance of payments operates in the opposite direction. As depreciation continues in Argentina and Brazil, however, the monetary variable loses its power, however, as it also did in Chile in 1889-94. Nor is the actual decline as fully explained. This reflects the inertial force of the exchange rate change that carries it through a later period of more restrictive monetary policy.

Part of the explanation is economic, and is found in other episodes of inflation and inconvertible currency. As is clear

from the figures, during the accentuated periods of monetary growth in these countries, the rate of increase of the money supply initially exceeds the depreciation of the exchange rate. Peter Bernholz also observes the same in his study of several European cases and the United States during the Civil War period. Later the exchange rate catches up, as it does in these Latin American cases.¹⁸

There are two implications. One is the space that is opened for domestic expansion. Real credit, measured in terms of foreign currency, has increased. Firms are encouraged to invest in substitutes as the prices of importables rise, and presumably wages lag. Bernholz's additional finding of generalized undervaluation of the rate in the first phase, making imports more expensive, goes to the same point. The also now more expensive imported capital equipment and inputs can be afforded because of the abundant domestic credit. As exchange rates subsequently catch up, they sustain the prices of final goods and are no longer relevant to equipment purchases. This mechanism helps to explain why the apparent speculative booms in these countries left a more durable imprint, particularly on the industrial sector.

A second consequence was the disappointing ineffectualness of restrictive monetary policy. Despite controls over further emissions, the exchange rate did not respond. The initial excess liquidity was gradually absorbed, by continuing reductions in its real value. Not surprisingly, real activity, and not merely speculation, declined.

Political circumstances, however, also contributed in the same direction in these three countries. All underwent political revolution during the second depreciation episode, successful in the cases of Argentina and Chile, but not so in Brazil. That additional uncertainty stimulated speculation against the national currency and complicated efforts to stabilize. The target of appreciation required, and in all three cases received, heroic application of unpopular orthodox measures.

During these subsequent periods of appreciation, external factors came into their own. As Table 2 indicates, favorable balance of payments developments and international price movements were central to success. Argentina was even able by 1900 to increase its note issue relative to 1891, although there was some reduction from the 1893 peak. Brazil and Chile both enforced monetary discipline to the extent of absolute declines in the nominal money stock. But Brazil benefited from an improving balance of payments and rising international prices as well, and was thereby enabled to stabilize the exchange rate and expand real activity at a high rate before the First World War.

Chile's external accounts, on the other hand, moved adversely just when the country was establishing convertibility. That put an exclusive and intolerable burden upon domestic retrenchment, exacerbated by the decision to aim for a par value that substantially exceeded current market values. Indeed, the very lack of credibility of the initial target of 24d., later reduced to 18d., probably contributed to further depreciation rather than easing

the task.

The Chilean approach to stabilization contrasts with the Argentine and Brazilian decisions to stabilize through conversion accounts at the market rate. There was no pretext of a circulating metallic medium of exchange, only a requirement that some portion of deposits be convertible. So long as external circumstances were favorable, the system could function. But contemporaries recognized that it was a fair weather expedient. The Economist's special correspondent in Argentina observed: "In short the convertibility of the currency is dependent upon our prosperity and upon the existence of a Conversion Fund."¹⁹ Neither government was committed to defend the exchange rate in a downward direction by deflationary policy. And when the war came, both countries abandoned their experiments.

Motives and Policies

If the monetarist explanation is too narrow, so is also the corollary that special interests determined depreciation and domestic inflation to suit their export and debtor status.²⁰ Albert Hirschman has described the special logic used: "Inflation benefited certain social classes; hence inflation was planned and organized by these classes, a proposition that is even more plausible when it is recalled that these very classes controlled the country's destiny."²¹ Conviction requires more than a motive. If not a smoking gun, there must at least be some indication of how the crime was committed.

Table 3 rules out one plausible mechanism by which the

result might have been achieved. It examines the relationship between annual governmental deficits and changes in the money supply. To the degree that pro-inflationary groups might pressure for increased expenditure, they would accomplish their monetary objective. Such a sequence is decisively rejected. For all three countries, there is no indication of any relationship at all. This randomness stands in contrast with later periods in Latin America, including the present, in which the fiscal deficit is a major contributor to inflation.

A closer look at the pattern of increases in the money supply graphed in Figures 1 - 3 weakens the proposition that monetary expansion was a consistent policy followed uniformly in all three countries.

In the Brazilian case, in Figure 2, it becomes evident that there was a single episode of monetary growth associated with the founding of the Republic. Rui Barbosa's liberal monetary policy was a conscious break with the earlier conservatism, but there is little to suggest it was motivated exclusively by the coffee interests, or in response to falling international prices they faced. That problem was to emerge later, and to require a response organized by the coffee states themselves. In the 1880's international prices rose to offset the impact of that decade's modest appreciation. No remedial action was required, or indeed actively sought. Stephen Topik's judgment, rather is the correct one: "[M]anipulation of currency was not intended to assist export producers....[Government officials] were dismayed when the mil-reis fell by more than 50 percent."²² Monetary issue quickly

Table 3
 Regression Results
 Money Supply and Fiscal Deficits

	Dependent Variable	Independent Variables			
	Change in Money Supply	Deficit	AR(1)	\bar{R}^2	D-W
Argentina					
Least Squares					
1885-1990		.073 (.63)	.36 (1.36)	.04	2.06
Brazil					
Least Squares					
1877-1906		.078 (.39)	.33 (1.78)	.04	1.79
Chile					
Least Squares					
1880-1913		-.18 (.33)		-.03	2.03

Data Sources:

Argentina:

Notes in circulation: See Table 1.

Deficit: Extracto Estadístico, 1915, pp. 236-237.

Brazil:

Money Supply: See Table 1.

Deficit: Anuário Estadístico, 1939-40, p. 140.

Chile:

Money Supply: See Table 1.

Deficit: Sinopsis Estadística, 1921, p. 66, 68, 70.

became a defensive policy to ward off the danger of widespread bank failure. After the initial surge, policy became more restrictive, culminating in the retrenchment from 1898 to 1902.

In Argentina, the origins of rapid monetary expansion date from the late 1880's. The principal objective can be taken at face value. It was one of creation and extension of a banking system to serve the rapidly growing and extending Argentine economy. There was much speculation and excess issue to be sure, but it was equally the case that railway mileage in use doubled and real exports went up by a third in a five year span. President Celman's reputation for probity is not the highest, but his evaluation of the period seems to have some merit in tempering the judgment of his critics: "[W]hatever may be the sacrifice occasioned by the depreciation, it is insignificant when compared with the advantages which the Republic has derived from the opening of the banks throughout the provinces, and from the stimulus industry has received thereby."²³

With the end of boom and balance of payments constraints in the 1890's came a more conservative policy. Banking was reorganized. Government retrenched. There was no effort to spend one's way out of the post-Baring Crisis depression. An expansionary spirit, in other words, depended upon the international cycle and was not independent of it. The episode, in its qualitative aspects, if not in the degree of depreciation, is reminiscent of the pattern of frontier settlement in the United States.

It has also been argued that a decisive measure of the influence of the export sector in Argentina and Brazil was the establishment of conversion funds in both countries to check further appreciation of the currency. That is the way both Ford and Furtado explain the policy. There was extensive debate in both countries and the agricultural interests certainly manifested themselves in favor of the measure. They opposed monetary restriction to abet appreciation. But so did others, like nascent domestic industrialists whom revaluation would prejudice, counteracting the benefits conferred by the earlier crisis of the 1890's.

The earlier regression analysis of Table 1 sheds additional light on this question. We may ask how far could appreciation have proceeded in both countries on the basis of no further nominal monetary issue. In the case of Argentina, with its more bouyant export sector, further gains of some 75 percent might have been realized through 1912 under such a strict monetary rule. But even then, there would have been a gold premium of 8 percent. Williams is too sanguine in asserting that "there is every reason for supposing that had matters been allowed to take their own course, paper money would have eventually come to a par with gold."²⁴ The efforts required were strenuous indeed. A significant sacrifice would have been incurred, as the Chilean example suggests. The gain would have been commitment to a fixed standard and a corresponding credibility in government policy.

Brazil, from 1906 to 1912, could have experienced further appreciation of less than 20 percent, had there been a constant

nominal money supply instead of an actual increase of 73 percent. It seems a rather unfavorable trade-off. Brazil would still have been far from the legal 1846 par of 27d. at that point; such a level could never have been restored. Unlike Argentina, Brazil's product specialization in coffee and rubber was not a source of continuing balance of payments strength. Nor did the government provide unqualified support for the coffee interests. As Winston Fritsch has shown, "the federal government did not guarantee the foreign loan needed to implement the price support scheme as requested by the signatories of the [Taubate] Convention, nor did it stabilize the exchange rate at the level and in the way asked by them: it was the government of Sao Paulo which eventually had to organize the support of prices in late 1906 with the help of some large roasters, and the federal project creating the pre-war gold standard incorporated the essence of the views of the then influential group linked with the Murtinho-Bulhoes policies, allowing for upward adjustments of the parity if the balance of payments position so permitted."²⁵

The Chilean case of monetary expansion is a clearly divergent one because of the pre-war continuity of inconvertibility. Fetter captures its essence when he writes that the period 1898-1907 is "an almost unique case in world monetary history, since it is characterized by continuous emissions of paper money in a period of full economic prosperity, of internal and external peace, of balanced public finance, and with a conservative President and Congress..."²⁶ Those same external conditions had led

Argentina and Brazil back to the gold standard. The Chilean exception is not, however, the exclusive result of the special power of group interests it has been made out to be. Like the other countries, war and internal disruption had contributed in the past to monetary issue; like the other countries, there was a continuous conservative pressure to restore convertibility; but unlike the others, Chile succeeded in undertaking a poorly conceived and unsuccessful return to the gold standard. Why a decade later, would it opt for a repeat, even under more auspicious international conditions? Failure was of recent and bitter memory.

The 1904-07 inflation was not so much the victory of a narrow set of landowners as it was a victory for generally expansionary sentiments. And landowners themselves were far from a homogeneous group. P. S. Conoboy concludes in his dissertation on the period: "The hacendado/debtor theory of monetary inflation in Chile has clear limitations....[T]he economic interests of the ruling class were so entangled between agriculture, banking, industry, mining and commerce that it is difficult in all but a few cases to identify one economic interest with one individual or group. Land ownership was common among papeleros and oreros alike."²⁷

In sum, the beneficiaries of inflation are not necessarily the villains of the piece. Attention is much more usefully directed to the relationship between repeated government issue and the fragility of a national banking and financial system in competition with foreign intermediation. In all three countries,

banks were active participants in the political process, and in all three countries, financial development lagged. There were, therefore, continuing pressures, both private and public, to create a more adequate financial infrastructure that could attend to expanding economic activity. The lack of success in doing so is registered in the inflation index; the consequences of not trying to do so might have been greater. From a modern perspective, the inconvertible standard is less a fall from grace than contemporary opinion believed.

III

The Advantages of Exchange Rate Flexibility

There are three properties of exchange rate flexibility that argue in its favor as a standard of choice for these raw material producing peripheral economies. Floating exchange rates can reduce the impact of random international variability upon domestic prices; they can enhance relative price changes and thus facilitate quantity adjustments to more permanent changes in the international economy; and they reduce the resource costs inherent in maintaining reserve levels necessary to defend a fixed rate.

The standard conclusion of international trade theory is that exogenous demand shocks are lessened in their effects on domestic prices as a result of intervening exchange rate adjustment under a floating system. Thus domestic prices of tradables are insulated against random changes, and there is no correspond-

ing need for compensating changes in prices of non-tradables. With a fixed exchange rate, all internationally determined prices are automatically transmitted and induce a domestic reaction.

Of special interest for these economies is the question of export price induced terms of trade changes. Under variable rates, domestic prices of imports are directly affected: falling international export prices translate into rising domestic prices of imports. At that point the story becomes more complicated, and depends on substitution with non-traded goods. If there is no domestic demand for exportables, a flexible rate assists by also changing import prices, and thereby reducing the burden on non-traded goods adjustment.²⁷

This analysis refers to random shocks, where the prime objective is to limit domestic price, and hence real allocation, effects. The pegged rate alternative also presumes the ability to finance short-term balance of payments disequilibria with the proceeds from symmetrical boom years. While the results suggest some advantage for exchange rate flexibility, they are not the heart of the matter. In historical fact, the shocks to these countries tended to be cyclically concentrated, and the large external terms of trade and volume fluctuations necessarily called for some domestic response.

Under gold standard conditions, that meant not only reserve changes, but domestic income and price changes induced by the changing external environment. Flexible internal prices, and a high degree of substitutability between non-traded and tradable sectors, could sustain output, although real income would have to

accommodate. Sticky domestic prices put more of the burden on quantity adjustments to sustain external equilibrium. Fixed wages and prices in domestic currency, and a specialized export sector, would translate declining international demand into domestic unemployment as a way of cutting back on imports. Since capital inflow was correlated with the internal boom, the corresponding slump was exaggerated by negative resource transfers.

Flexible exchange rates in such circumstances directly reduce real wages through the variation in the price of tradables, and induce domestic production of import substitutes. The very extent of the internal debate in these countries about group interests and the income distribution consequences of exchange rate changes is just the other side of the coin of wage stickiness. Flexible rates, in conjunction with monetary expansion, created booms in all three countries that went beyond sheer speculative and financial episodes. And flexible rates, after the crash, eased the subsequent adjustment. Not least, reductions in real wages provided profitable possibilities for domestic industries despite hard times. Import demand fell off substantially, not only as a result of the exchange rate changes, but also of higher tariffs needed to meet the revenue requirements of stabilization policies. Although domestic income was also affected, demand for import substitutes was still vigorous.

In all the countries, these real wage effects contributed to increasing social tensions as they contributed to a redistribu-

tion of income. That, of course, was the starting point for the exporter/agrarian-led theory of inflation and depreciation. The working class in Chile reacted violently to the price rises in 1907 and provided strong support subsequently for more orthodox alternatives.

Yet such a cyclical effect should not be translated into a permanent determinant of the income distribution in a way that much of the literature seems to do. While there was reason to debate the rate at which exchange would be stabilized, because of its short-term distributional impact, that nominal rate was not crucial to the longer term division of income. Prices of non-tradables and labor did not remain fixed forever. There was adjustment over time, only belatedly. That is why the stabilization of the exchange rate in Argentina and Brazil, instead of continuing appreciation, cannot be taken as a permanent victory for the export sector or a loss for others. The dominant elite had other powers at its disposition, and there was a rather elastic labor market by virtue of substantial immigration.

But over the cycle, exchange rate flexibility assisted in adjustment through import reduction and diversification into domestic industrial production as well as by facilitating continued expansion of the export sector. The latter would lead the economy back into prosperity once international conditions improved. Income changes, as Ford has stressed, also occurred in the these peripheral economies, more so than at the center where capital mobility also provided balance of payments relief.

That circumstance is crucial, and in the end explains why

these countries had such a difficult time maintaining exchange rate stability. The gold standard was for them a fair weather rule. So long as international capital flowed in and the balance of payments was not a constraint, all was well. But under adverse conditions, the only way to cut imports would have been through income reductions. To compensate for the fluctuations by reserve movements would have required very high reserve levels. Russia did so, but at a cost. These peripheral economies could not depend upon interest rate differentials to attract the compensating capital flow needed. They were not part of the global system of rapid portfolio adjustment offered by Dick and Floyd as an explanation for the gold standard's success in Canada.²⁹ Investment came and went in a long term cyclical rhythm that was driven by other factors.

Inconvertibility partially eased that problem of downward adjustment. It also provided scope for tackling the longer term need for domestic financial development. Banking expansion and reform came off badly and led to inflation. That did not mean that credit requirements for these expanding economies was an irrelevant concern and that the experimentation was totally unwarranted or unproductive. Despite it all, all three countries experienced rapid growth in this period.

A better interpretation for Argentina, Brazil and Chile's similar deviation from the gold standard in 1880-1913 is to be found in their common economic situation than in the independent pursuit of narrow group interests in each.

Appendix

A simple macro-economic model of simultaneous internal and external equilibrium can be used to relate exchange rates, income, domestic prices and interest rates to a set of exogenous determinants.¹

I start with a conventional internal equilibrium relationship between the level of real income and real exchange rates, measured in domestic currency per unit of foreign currency, and real interest rates:

$$(1) Y = f(\text{ExR}/P, r)$$

Y is positively related to a higher (i.e., depreciated) exchange rate since the net export surplus increases, and also inversely related to higher interest rates through sensitivity of investment expenditures.

The next equation is a standard demand for money equation relating real demand for money balances to real income and to the opportunity cost of holding money, the nominal interest rate: the sum of inflation and the real interest rate:

$$(2) \frac{\text{Mon}}{P} = g(Y, r + \dot{P}/P)$$

¹This model differs in two respects from a related one of Eliana Cardoso, which she used as the basis for analyzing Brazilian exchange rates over the period 1862-1906. Unlike her, I do not reduce import demand back to domestic supply, and hence do not require a domestic wage variable. The data are at best precarious (a questionable cost of living index must be used), and nominal wages are dubiously regarded as exogenous. On the other hand, this version places the capital account in a place of prominence, which seems more appropriate in a late nineteenth century context. See her "Exchange Rates in Nineteenth Century Brazil: An Econometric Model," Journal of Development Studies, Vol. 19 (no. 2), January 1983, pp. 170-178.

Equation (3) is the balance of payments identity:

$$(3) P_x \cdot X - P_m \cdot M(Y, ExR/P) + F - iD = 0$$

Exports are taken here to be exogenous. Where there is relatively little substitutability in production, and long lags in response to past price signals as with coffee, this simplification is justifiable. Imports increase with income and decline with a depreciated exchange rate. F is net foreign lending, while iD is interest on past debt.

Equation (4) sets up a relationship of domestic prices to the exchange rate, foreign prices and income:

$$(4) P = h(P^*, ExR, Y)$$

Purchasing power parity does not always hold owing to divergent non-traded price movements that are dependent upon the size of real income relative to capacity. This provides scope for the real exchange rate changes necessary to assure joint internal and external equilibrium.

This model determines the four endogenous variables Y , ExR , r and P for given values of M , $\frac{P_x X}{P_m}$, P^* and $(F - iD)$. (Export earnings are here deflated by an import price index and thereby converted to a measure of import capacity.)

Because of data limitations, the only dependent variable available for test, but a relevant one for our purposes, is the nominal exchange rate. Its relationship to the exogenous variables is clear. An increased supply of money leads to increased real expenditure and/or domestic prices which in turn contribute to a balance of payments deficit; hence the relationship with

Table 1

Regression Results
Monetary and Structuralist Explanations

	Dependent Variables	Independent Variables					\bar{R}^2	D-W	
		Money ^a Supply	Foreign ^a Price	Capital Inflow Minus Debt Service ^b	Real ^a Export Receipts	Terms ^a of Trade			AR(1)
Argentina									
	Gold Premium ^a 1884=100								
Least Squares									
	1884-1900	.58 (7.25)	-.22 (.76)				.83	.66	
	1885-1900	1.42 (4.26)	-.62 (1.37)			.84 (16.5)	.95	2.80	
	1884-1900	.64 (11.28)	-1.18 (2.64)	-.0018 (3.84)	-.54 (5.34)		.95	2.49	
	1884-1899	.51 (5.70)	-.18 (.23)	-.0013 (2.07)		-.50 (2.18)	.91	1.89	
Brazil									
	Milreis per pound ^a								
Least Squares									
	1877-1906	.62 (4.92)	-.87 (2.18)			.89 (7.27)	.95	1.48	
		.64 (6.65)	-.89 (2.37)	.0017 (.60)	-.35 (2.57)	.82 (6.74)	.96	1.82	
		.60 (4.75)	-.88 (2.21)	-.0015 (.52)		-.15 (1.63)	.89 (6.52)	.95	1.61
Chile									
	Pesos per pence ^a								
Least Squares									
	1881-1913	.65 (9.00)	-1.32 (3.48)			.58 (3.95)	.93	1.69	
		.72 (6.05)	-1.49 (4.11)	-.0014 (2.35)	-.09 (.53)	.58 (3.79)	.94	1.84	
		.66 (11.88)	-1.38 (4.32)	-.0016 (2.71)		-.41 (1.96)	.50 (3.23)	.95	1.85

(Table 1: Regression Results... cont'd)

^a expressed in logarithms.

^b in million gold pesos, thousands of £, and million pesos of 18 d. for Argentina, Brazil and Chile respectively.

Data Sources:

Argentina

Gold premium: Ford, Gold Standard, p. 139.

Value and Price of Exports: Diéguez, "Crecimiento e Inestabilidad"

Import price: British export price deflator from Albert H. Imlah, Economic Elements in the Pax Britannica, New York, 1969, pp. 94 ff.

Money Supply: Notes in circulation from Extracto Estadístico, 1915 (average of preceding and current year.)

Capital Account: Williams, Argentine International Trade, pp. 45, 101, 136, and 154.

Foreign Price: B.R. Mitchell, Abstract of British Historical Statistics, Cambridge, 1962, p. 474-75. The Sauerbeck-Statist wholesale price index was used.

Brazil

Milreis per pence: Anuário Estatístico, 1939-40, pp. 1353-54.

Value of Exports: Anuário, p. 1358.

Price of Coffee: Anuário, p. 1378.

Import Price: As above.

Money Supply: Carlos M. Palaez and Wilson Suzigan, História Monetária do Brasil, Rio de Janeiro, 1976, Table A.3, pp. 442 ff. (End of June values)

1876-1897: Anuibal Villela and Wilson Suzigan, Política do Governo & Cescimento de Economia Brasileira, 1889-1945, Rio, 1975, p. 437.

Capital Account: Franco, Reforma Monetária, pp. 47-48. (Debt service was calculated from Table A-3, p. 47.) 1898-1906:

Foreign Price: As above.

(Fiscal year averaged until calendar year series begins in 1888.)

Chile

Pesos per pence: Reciprocal of average pence per peso, Sinopsis Estadística, 1921, p. 61.

Value of Exports: Sinopsis, p. 64.

Export Price: Chain index constructed from price and quantity datas in Sinopsis, pp. 115, 150. Weights are 1884-86 for period 1880-93 and 1900-02 for period 1894-1913.

Import Price: As above.

Money Supply: Preito series reproduced in Markos Mamalakis, Historical Statistics of Chile, V, Westport, 1985, pp. 77-79.

Capital Account: New issues of public debt minus public debt service as given in Sinopsis, p. 71.

Foreign Price: As above.

Footnotes

1. A. G. Ford, "Notes on the Working of the Gold Standard before 1914," in B. Eichengreen, ed., The Gold Standard in Theory and History, New York, 1985, pp. 150-151.
2. A. G. Ford, The Gold Standard, 1880-1914, Oxford, 1962, p. 91.
3. Winston Fritsch, "Aspects of Brazilian Economic Policy Under the First Republic (1889-1930)," Ph.D. Dissertation, Cambridge, 1983, pp. 4-5.
4. Frank Fetter, Monetary Inflation in Chile, Princeton, 1931, p.127 (in Spanish translation used).
5. For two recent works critical of the conventional views in Brazil and Chile, see Fritsch, "Brazilian Economic Policy" and P. S. Conoboy, "Money and Politics in Chile, 1878-1925," Ph. D. dissertation, University of Southhampton, 1977.
6. Guillermo Subercaseaux, Monetary and Banking Policy of Chile, Oxford, 1922, pp. 126-28.
7. John H. Williams, Argentine International Trade Under Inconvertible Paper Money, 1880-1900, Cambridge, 1920, p.35. I have based my synopsis on him, Ford, The Gold Standard, and Jose Panettieri, Devaluaciones de la Moneda (1822-1935), Buenos Aires, 1983.
8. Gustavo H. B. Franco, Reforma Monetaria e Inestabilidade Durante a Transicao Republicana, Rio de Janeiro, 1983, p. 21. For Brazil also see C. Palaez and W. Suzigan, Historia Monetaria do Brasil, Rio de Janeiro, 1976 and Paulo Neuhaus, Historia Monetaria do Brasil, Rio de Janeiro, 1975.

9. These calculations take 1901-04 as their base. For the export indices, see A. Vilella and W. Suzigan, Politica do Governo e Crescimento da Economia Brasileira, 1889-1945, Rio de Janeiro, 1975, p. 427.
10. For general development of the Chilean economy, I have used Oscar Munoz, Chile e su Industrializacion, Santiago, 1986. The statistics on the nitrate industry come from p. 66.
11. G. Subercasseaux, Monetary and Banking Policy, pp. 88-89. I have drawn extensively on his treatment of the Chilean situation, as did Fetter.
12. Fetter, Monetary Inflation, p. 120. In fn. 34, Fetter goes on to link the rumor of war as having been deliberately fostered by the papeleros in order to break the gold standard.
13. P. S. Conoboy, "Money and Politics," p. 268, gives the boom mixed marks. Albert Hirschman, Journeys Toward Progress, New York, 1963, p. 173, reflects a more negative assessment. Henry W. Kirsch, Industrial Development in a Traditional Society, Gainesville, 1977, points to the more durable consequences in the industrial sector. (pp.18-20).
14. Cited in Franco, Reforma Monetaria, p. 33.
15. Fetter, Monetary Policy, pp. 143-44.
16. I include the three years in which Chile is on the gold standard to provide the continuity needed for the statistical estimate of the influence of autoregression. Note as well that for Argentina, the series available is for fiduciary circulation and does not include bank deposits.

This indirect method of estimation does away with the need for domestic price series. Although there are some estimates for Brazil and Chile for the whole period, and partially for Argentina, they are based on a small number of commodities and show excessive movement. The product series for Brazil (and its implicit deflator) is also suspect, being based entirely on (later) correlations between trade and output.

17. The F-tests are straightforward for Brazil and Chile, and in both cases, the hypothesis of null influence of the balance of payments is rejected at the 99% level of confidence. For Argentina, with a rho-transformed dependent variable, the balance of payments variables are insignificant. Such a transformation is dubious since it produces a higher Durbin Watson statistic for the complete equation than without the correction for autocorrelation. For the non-transformed variables, Argentina joins Brazil and Chile, and has the largest F value.

18. Peter Bernholz, "Flexible Exchange Rates in Historical Perspective," Princeton Studies in International Finance, No. 49, July 1982.

19. Quoted in Ford, The Gold Standard, p. 108.

20. Celso Furtado's position is different from the usual one in emphasizing the importance of the balance of payments and market forces. Maintaining profit in the coffee sector establishes a need to transfer income when coffee prices decline from the community as a whole to the coffee exporters, thereby concentrating income. In the absence of a flexible rate, moreover, the alternative is worse. For Furtado, the mechanism transcends

groups and policy and is the consequence of dependent capitalist development. See his early and classical discussion in The Economic Growth of Brazil, Berkeley, 1963, pp. 177-185.

21. Hirschman, Journeys Toward Progress, p. 169.

22. Stephen Topik, "The State's Contribution to the Development of Brazil's Internal Economy, 1850-1930," Hispanic American Historical Review, vol 65, no. 2, May 1985, p. 209. See also his unpublished 1985 paper, "Brazil's Republican Revolution: The Bourgeoisie in Power?"

23. Cited in Williams, Argentine International Trade, p. 64.

24. Williams, Argentine International Trade, p. 155.

25. Fritsch, "Brazilian Economic Policy," p. 239.

26. Fetter, Monetary Inflation, p. 127.

27. Conoboy, "Money and Politics," p. 312.

28. Stanley Black, "Exchange Policies for Less Developed Countries in a World of Floating Rates," Princeton Essays in International Finance, No. 119, December 1976, pp. 8-10.

29. Trevor J. O. Dick and John E. Floyd, "Canada and the Gold Standard, 1871-1913," mimeo, 1987.

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nominal exchange rates is positive. Larger import capacity leads to a lower (appreciated) exchange rate since it produces an excess supply of foreign exchange. Nominal exchange rates are inversely related to foreign prices through the change in domestic competitiveness and hence import demand. Finally, an increase in loans net of debt service operates exactly like an expansion of exports.

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