

Some stylized facts on external shocks and inflation upsurge in Brazil, 1951-1985

Alguns fatos estilizados sobre choques externos e surtos inflacionários no Brasil, 1951-1985

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Abstract

This paper studies the episodes of inflation upsurge in Brazil from 1951 to 1985, a period wherein Brazilian inflation rates were among the highest in the world. It identifies the episodes of inflation upsurge within this period and analyzes whether they were concomitant with and/or preceded by some type of external shock (exchange rate devaluations and/or commodity price shocks). Based on this relationship this paper identifies eight episodes of inflation upsurge and shows that seven out of these eight episodes followed such pattern. We show also that such analysis is strongly associated with the traditional structuralist Latin American inflation theory.

Keywords

Brazil, cost-push inflation, external shocks.

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Resumo

O presente artigo estuda as causas do aumento da inflação no Brasil de 1951 a 1985, período em que as taxas de inflação brasileiras estiveram entre as mais altas do mundo. Para tanto, identifica os episódios de surto inflacionário no Brasil nesse período e observa se eles estiveram relacionados a fatores de pressão de custos, notadamente choques externos (desvalorizações cambiais e / ou choques de preços de commodities). Observa-se que sete dentre os oito episódios de surto inflacionário identificados no período foram precedidos ou concomitantes a alguma forma de choque externo. Mostramos também que essa análise é profundamente associada com a tradição estruturalista Latino Americana em termos de interpretação do fenômeno inflacionário.

Palavras-chave

Brasil, inflação de custos, choques externos.

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1 Introduction

In the second half of the 20th century, most Latin American countries suffered from chronic inflation, which in some cases developed into hyperinflation or close to hyperinflation. As a result, there was a huge debate in those countries on the causes of that problem. One obvious interpretation was the mainstream view that the inflationary process was the result of excess demand due to lax fiscal and monetary policies. This traditional point of view – usually known as monetarist – was supported by many economists within those countries and by international institutions such as the International Monetary Fund (IMF).

From the 1950s on, an alternative view – developed by economists associated with the so-called Latin American Structuralist School or the Economic Commission for Latin America (ECLA) School – challenged this traditional interpretation. ECLA's economists interpreted the process of chronic inflation experienced by Latin American economies as essentially stemming from structural characteristics of the region, among which imbalances in specific sectors – especially agriculture – and external shocks resulting from recurring crisis in the balance of payments (Noyola-Vasquez, 1957; Sunkel, 1958). ECLA's view linking cost shocks to inflation belongs to a broader cost-push inflation tradition, which includes for instance the German Balance of Payments School of the 1920s and the later Post-Keynesian literature on inflation. Accordingly, the cost-push inflation tradition argues that cost-push shocks – namely mark-up, wages, exchange rate or international price shocks – are the main explanation of variations in inflation rates.

This paper studies the causes of inflation upsurges in Brazil from 1951 to 1985, a period wherein Brazilian inflation rates were among the highest in the world. For this purpose, it identifies the episodes of inflation upsurge in Brazil within this period and observes whether they were related to cost-push factors. Specifically, we evaluate whether external shocks (exchange rate devaluations and/or commodity price shocks) are closely related to Brazil's inflation upsurge episodes in the period 1951-1985. In this interval of time, there were in Brazil several external crises or situations in which financing conditions deteriorated. Moreover, the fiscal and monetary policies varied substantially. It is thus interesting to raise his-

torical evidence on the potential causality of external shocks on inflation upsurges in the Brazilian case.

The paper consists of two sections besides this introduction and the conclusions. The next section consists of a theoretical discussion, in which there is a presentation of the Latin American Structuralist theory of inflation and other theories belonging to the wider cost-push inflation tradition. The subsequent section – which is the core of the paper – contains a historical analysis providing a long-term narrative that supports the cost-push inflation hypothesis. In this section, we identify all the episodes of inflation upsurge from 1951 to 1985, verifying whether they had been concomitant with and/or preceded by some type of external shock. After that section, we add some concluding remarks.

The paper's major contributions to the literature on inflation in Brazil are twofold: a) it provides a long-run portrait of Brazil's inflation process, instead of focusing on a very limited period of time as it is usually the case of studies on inflation in Brazil¹; b) it identifies specific episodes of inflation upsurge over this long range period and their potential connection to external shocks – which, to the best of our knowledge, is an aspect lacking in the existing literature – and provides arguments enhancing studies on inflation causality under the cost-push explanation, by showing with historical data that it seems to be a solid general hypothesis to explain the Brazilian case².

Despite the tradition of intense debate on inflation in Brazil, econometric studies on causes of inflation upsurges are so far rather rare. Though this sort of exercise is not included herein, this paper presents a strong argument in favor of further studies on inflation causality, taking into account the cost-push hypothesis.

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1 Such as, for instance, Lara Resende (1982) that deals only with the inflation acceleration process of the 1960s or Bastos (2001) that deals specifically with the inflation dynamics and stabilization plans of the 1980s and early 1990s.

2 Barbosa (1983), Simonsen (1985; 1995) and Franco (2005) are examples of the few works that made an attempt to analyze Brazil's inflation process in a long-run perspective. In any case, none of them tried to identify specific inflation upsurge episodes. Barbosa (1983) presents two distinct inflation theories (monetarist and structuralist) and makes some empirical tests for the period, whereas Simonsen (1995) focuses on institutional aspects of the indexation mechanisms over the period 1964-94 and Franco (2005) provides a brief narrative of the inflation process from the 1960s to the early 2000s from an orthodox point of view.

2 An overview of cost-push models – the Latin American tradition

In this section we will firstly present a summary of what one may call the *Latin American tradition of cost-push models*. Secondly, we will describe the connections between exchange rate devaluations and inflation. By the latter, we mean a group of explanations for inflation developed by Latin American authors aiming at explaining the experience of Latin America. Those explanations follow the non-monetarist tradition that could be traced back to Thomas Tooke's explanation for the British inflation during the Napoleon Wars and the *German Interpretation* of Germany's 1920s hyperinflation, which contrasted with the (monetarist) diagnosis produced by the Allies.³ Latin American cost-push models analyze historical inflationary episodes, focusing on the dynamic of some basic elements of costs instead of mismatches between full-capacity production and demand. The basic ideas were, broadly speaking, developed around the ECLA's circle in Santiago, Chile.

The seminal paper that marks the beginning of the so-called ECLA School is the *Estudio Económico de América Latina* written by Dr. Raul Prebisch in 1949 (see ECLA, 1950). This paper – an authentic watershed in theoretical terms – was followed by a strong body of works, whose most important consequence was providing the support to Import Substitution policies carried out by almost all Latin American countries. Although those policies became almost a trademark of the ECLA School in Latin America, this institution also had some interesting things to say about inflation.

Prebisch is said to have drawn from his experience as president of the Central Bank of Argentina the conclusion that "...the control of the inflation in our countries demands specific diagnosis for each case and not the adoption tout court of measures related with money and credit expansion." (Gamboa, 1978, p.9). This is a basic and important characteristic of the Latin American structuralist interpretation: the notion that inflation is a particular phenomenon, so that its study depends on the institutional and historical setting of each country. In other words, one needs to study it according to its structural components.

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 3 See Aron (1991) for Tooke's main ideas. On the debate on the 1920s hyperinflation episodes see Franco (1986) and Bastos (2002).

In search for *structural* factors, several authors examined the causes of inflation as supply elements, or factors influencing cost formation. The latter follows precisely the theoretical approach that we think provides a good explanation for the Brazilian inflationary experience⁴. Moreover, consistent with ECLA's general approach sketched out above, several structural factors explaining inflation also play an important role in the analysis of problems or barriers to economic development. Two main sets of arguments can be presented, as follows.

Firstly, there was the idea of imbalances that stem from rapid economic growth. Although *imbalanced growth* could have positive dynamic properties, as Albert Hirschman stressed in his work, it might create some sectoral imbalances resulting in potential cost pressures, even when the economy operates below full employment. The analysis of this type of sectoral imbalance has great relevance within the structuralist tradition. For instance, Olivera (1964) limits the structuralist interpretation within these rather strict boundaries, meaning that the approach should basically refer to structural imbalances and rigidities on specific economic sectors. What structuralist authors and particularly Olivera (1964) argue is that Latin America economies were likely to present sustained inflation, which would be well described by the following structural reason, namely the growth process that characterizes developing countries.

An example of specific sectoral imbalance that has been repeatedly singled out by structuralist authors as the most important is the agricultural bottleneck, especially the production of foodstuff directed to internal consumption. If one takes into consideration that foodstuff is a sizable portion of workers' real wage⁵, workers are likely to press for wage indexation to the variation of food prices. Therefore, the mechanism of wage indexation would transmit this initial cost push to the rest of the economy (including industries whose inputs do not include agricultural products). On the one hand, this idea has obviously had a decreasing importance over the years as agriculture advanced in terms of productivity in almost every Lat-

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4 It is important to acknowledge though that the works of structuralist authors mixed up strictly supply factors with demand issues as "structural" causes for inflation. See for example Sunkel (1958 p.574), where an alleged chronic savings deficiency is interpreted as a persistent explanation for inflation in Chile.

5 The backwardness of Latin American countries implied that the share of foodstuff in Latin American workers' consumption basket was high when compared to the more developed countries' workers.

in American country. On the other hand, the relation between commodity prices and internal inflation has become even stronger as modernized agriculture became fully integrated into world markets, and international prices have had a direct effect on domestic food prices and agricultural inputs prices. This mechanism gives the international commodity prices in local currency – multiplied by the exchange rate – a strong influence on internal inflation.

A second – and, for our purposes, more relevant point of view raised by the structuralist authors – consists of the relationship between external conditions and inflation. Latin American economies faced persistent deficits on the current account due to low diversification of production and concentration in resource-based exports, resulting in high income elasticity of imports and low export growth – besides a tendency towards the deterioration of terms of trade. Therefore, the deterioration of external trade conditions not matched by increased external financing – which in the periphery is a common event – cause recurring exchange rate devaluations. This instability and recurrent crisis would trigger an exchange rate-nominal wage spiral, and the structural external imbalances would make it extremely difficult to stop this process by adopting some sort of fixed nominal exchange rate policy.

Even though several Latin American authors stressed the connection between external conditions and inflation, it was a Hungarian-born British economist, namely Nicholas Kaldor (1974), who presented this issue in a systematic and organized manner. Due to the persistent pressure on the import capacity of certain countries, Kaldor divided the latter in two types: the inflationary ones (the ones that show this tendency) and the non-inflationary. Hence, there is an endogenous cause for persistent exchange rate devaluation. The combination of exchange rate devaluations and some degree of distribution conflict explains the recurrence and persistence of inflationary episodes in the continent.

Pazos (1972) developed an interesting analysis within the structuralist approach. Even though he affirms that inflation is a multi-factor process, in several passages of his book, for example, he does not support the idea that there is a persistent relationship between an acceleration of economic growth and inflation. In fact, due to the very nature of chronic inflation, Pazos dismisses the idea of an *accelerating* inflation that is present in the monetarist model. Contrary to the monetarist view, he argues that the

causality usually runs in the opposite direction by showing that the distortions induced in the economic system by persistent (and high) inflation are elements that usually “discourage production and hinder economic growth” (Pazos, 1972, p.37). He also uses the concept of economies and diseconomies of scale as an argument to support his criticism of the usual direction of causation^{6,7}.

However, Pazos most important contribution is the idea of *inertial* inflation⁸ – a concept that was later associated with authors that became highly influential in policy prescriptions during the 1980s, mainly in Brazil.⁹

Even though the wage and administered prices mechanism that explains inflation inertia deals clearly with the dynamic of cost elements, it is also true that the existence of such inertia indicates some degree of equilibrium, or the absence of an external force that accelerates the rate of inflation. This distinction is useful to briefly discuss the distinction between stable and high (and accelerating, or highly unstable) inflation.

According to Pazos’ “rapid accelerations are usually associated with foreign currency crisis” (Pazos, 1972, p.136). As for that, one may ask: what happens after an exchange rate devaluation?

If it is a *once and for all* movement, there would be an inflation spike that gradually subsides and eventually brings a lower wage rate and a devalued real exchange rate compared to the initial value. However, as it is the case of Latin American economies, a devaluation of the exchange rate is the consequence of serious international crisis, low export elastic-

6 When criticizing contractionary policies, he says: “When aggregate demand increases proportionately less than the inertial rise in costs, enterprises restrict sales and output rather than permit a reduction in their profits per unit of output by raising prices less than costs. As sales go down, costs per unit of output go up, thus giving a further push to prices” (Pazos, 1972, p.135).

7 Based on the empirical evidence from 1950 and 1970, Pazos (1972) also suggested that investment levels are not directly correlated with inflation in any sense: “Clearly, the figures on fixed investment ... do not correlate closely with the rates of inflation; hence they do not support the ideas most frequently held regarding the relationship between the two series. Neither do the figures substantiate the theory that inflation facilitates the financing of a high-level volume of investment by forcing up savings, nor the idea that it keeps investment down discouraging voluntary savings.” (Pazos, 1972, p.41).

8 In Brazil, Simonsen (1970) was a pioneering work suggesting the existence of what later became known as inertial inflation. Simonsen (1970) developed an inflation equation wherein – in the Brazilian case – the feedback coefficient from past inflation was highly significant.

9 The first stabilization program to openly use the concept of inertial inflation in Brazil was the Cruzado Plan. After this plan, every following plan in Brazil adopted some formula to bring wages to their previous real value (or its average over a specific period) and some mechanism to eliminate the inertial component.

ity of demand, high import elasticity of imports, and deteriorated terms of trade, which would imply, or require, several nominal devaluations of the exchange rate until the new real exchange rate settles at an *equilibrium value*, with the real wage bearing the burden for the change in external conditions.

However, it is highly unlikely that the resulting fall of wages and other changes in internal distributive variables would be met without any kind of resistance. Both nominal wages and nominal interest rates usually react to the increase of the exchange rate, setting in motion several rounds of nominal increases of all relevant distributive variables. If there is no accommodation, or if wage resistance were so strong that workers could increase nominal wage by the same rate of other distributive variables, then a hyperinflation would occur. This highly unstable case is not of interest for most practical cases, and specifically not for our study. What happened in real historical cases, or what the exchange rate devaluation triggers, is a sequence of nominal increases that at some point start to converge to some nominal *stable* variation rates, corresponding to real, or average, values for the relevant distributive variables, *e.g.*, the real exchange rate, the real wage and the real margin of profit (Bastos, 2002).

3 Exchange rate devaluation and inflation upsurge in Brazil, 1951-1985

3.1 Overview

The aim of this section is to analyze Brazilian historical data and determine the potential connections that might exist between external shocks and episodes of inflation upsurge. We characterize episodes of inflation upsurge as situations wherein the inflation rate (accumulated in 12 months) starts a period of several months (more than six months) of continuous or almost continuous rise, resulting in a rate of inflation (accumulated in 12 months) at least 50% higher than its initial value. External shocks correspond to a period of successive nominal exchange rate devaluations, a maxi-devaluation and/or a commodity price shock. The goal here is to identify episodes of inflation upsurge and to analyze whether these episodes were preceded by or concurrent with some type of external shock.

Our analysis starts in the post Second World War period, in which a rapid industrialization process had already been underway since the early 1930s. As Furtado (1965) wrote in "The Economic Growth of Brazil", in the 1930s Brazil experienced a definitive "displacement of the economy's dynamic center" from export-gearred agricultural activities to domestic market activities. The traits of that decade were a huge scarcity of foreign currency and a limited import capacity pushed for industrialization and urbanization processes. Industrialization and urbanization were thus supported by the (poorly efficient) previous productive capacity and by imports of used equipment from countries in recession, as well as by indigenous supply of capital goods in its low-efficiency infant stage of production, all of them acting as constraints that would probably have become more stringent throughout the war. The result was a generalized demand for infrastructure investment among entrepreneurs and government officials.

By the end of the war, there was – for a couple of years – a widespread hope that the international market would quickly start to operate normally under the rules of the Bretton Woods system. Brazilian policymakers were then confident that the foreign exchange reserves accumulated during the war, the export expansion prospects and the support of the United States to their Latin American war allies would allow for the implementation of large infrastructure projects. This would soon prove to be an exceedingly optimistic bet, followed by a growing frustration related to the dollar shortage and the North American emphasis on the reconstruction of Europe and Japan, neglecting Latin American and Brazilian needs. "Economic Reequipment" was the expression obsessively used for many years to refer to infrastructure requirements as evidenced by the name of the newly created fund that provided the capital for the installation of the *Banco Nacional do Desenvolvimento* (National Development Bank – BNDE) in 1952: "Fund for Economic Reequipment".

Our analysis in this section starts in 1951, a period of internal and external changes, and ends in 1985, when once again important changes were happening both internally and externally. It starts in 1951 because during Eurico Dutra's presidency (1946-51) the nominal exchange rate was kept fixed and there was no major external shock. It ends in 1985 because from this year on several (failed) stabilization plans were attempted, causing too many structural breaks in the data and leading to a situation of a near-

hyperinflation by the end of the 1980s. The data pertaining to that period after 1985 are not at all reliable and it is hard to identify any causal relationship between variables.

3.2 Historical record (1951-1985): seven out of eight episodes of inflation upsurge were preceded by or concurrent with external shocks

The data analysis shows that from 1951 to 1985 there were eight episodes of inflation upsurge, among which seven were preceded by or concurrent with some type of external shock. This evidence shows that we cannot reject the hypothesis that inflation upsurge in Brazil is strongly related to difficulties in the external sector¹⁰.

We identify a first phase from 1951 until 1964, alongside a period of scarce foreign currency availability. The increase in coffee prices (Brazil's most important exports good at that time) between 1949 and 1954 and a large amount of direct foreign investment in the second half of the decade alleviated the dollar shortage. However, the fast economic growth until 1962 and the poor access to financing during the whole period resulted in continuous pressure on nominal exchange rates, and thereby on inflation. Throughout this period, from 1951 to 1964, there were four episodes of inflation upsurge. Three of them were preceded by some type of external shock (see figure 1). The sole exception was the episode of 1955-56¹¹.

The *first episode* took place between July 1953 and May 1954 (lowest inflation rate 12%, highest 32%) and it was caused by the 103% maxi-devaluation of February 1953, which was then reinforced by the establishment of a multiple exchange rate system in October of the same year¹². This devaluation was the lasting result of a long period wherein the government kept the exchange rate fixed and overvalued: shortly after World

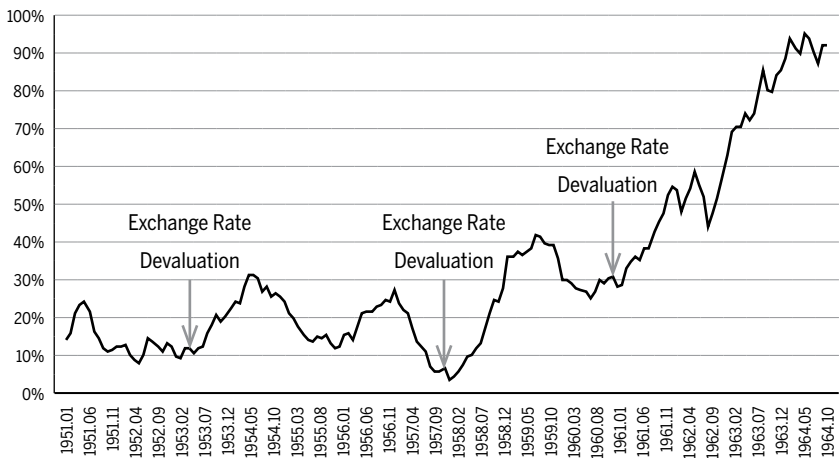
10 For a complete list of the inflation upsurge episodes, see Appendix 1.

11 We calculated the exchange rate devaluations for the entire 1951-1985 period based on the monthly change (%) of the average nominal exchange rate. This choice was due to Brazil having multiple exchange rates during the whole 1950s. The inflation rate used as a reference was the IGPDI (*Índice Geral de Preços*, or General Price Index) 12 months accumulated inflation rate. The IGPDI was the most important inflation index in Brazil after World War II.

12 Shortly after the adoption of the multiple exchange rates regime, a 38% maxi-devaluation in the average nominal exchange rate was registered in December 1953.

War II, the Eurico Dutra government fixed the nominal exchange rate in an appreciated level in real terms and did not change it throughout his whole term (1946-51). As previously noted, that was a period of dollar shortage, when even orthodox economists in Brazil agreed that a fixed exchange rate combined with government-managed import licensing should prevail as a mean to prevent large crises in the balance of payment (Bielschowsky, 2004, p.49-50 and p.312).

Figure 1 External shocks and inflation upsurge (1951-1964)



Source: Author's elaboration from Ipeadata.

In 1951, Getúlio Vargas' second term (1951-54) started with the Finance Minister, Horácio Lafer, attempting to bring inflation rates down. As a result, he avoided devaluing the exchange rate and opted for relaxing the import licensing system. The combination of a less protectionist system and an appreciated real exchange rate resulted in a boom in imports, so that Brazil's international reserves in convertible currency fell sharply. From this point on, the government tried to restore the former import licensing requirements, but the currency shortage could not be overcome (Vianna, 1990, p.126-28).

After such a long process of real appreciation and amid a balance of payments crisis, the devaluation of nominal exchange rate became inevitable. In early 1953, there was a huge exchange rate devaluation, and the exchange rate system was changed first with the Law 1807 of March 1953,

which practically instituted a multiple exchange rate system (Vianna, 1990, p.134). The system was changed again in October 1953 when the Instruction 70 of the *Superintendência da Moeda e do Crédito* (Money and Credit Superintendency, SUMOC)¹³ officially launched multiple exchange rates¹⁴.

In *Episode 2*, between April 1956 and January 1957 (lowest rate, 14%; highest, 28%), there was no clear evidence suggesting a connection between external shock and inflation. As previously noted, this is the only episode in the period studied in which we did not observe this connection.¹⁵

Episode 3 started in February 1958 and ended in August 1959 (lowest rate, 4%; highest rate, 42%). Devaluations took place in the second semester of 1957 and were likely to have been due to the changes in the exchange rate system caused by Law 3244, which reduced from five to two the number of categories under the variable surcharge rule. The new rules were set in August 1957 and the devaluation in the average nominal exchange rate started from this point on. There was a 40% devaluation of the average nominal exchange rate from July 1957 to February 1958, followed by a further 26% nominal devaluation from March 1958 to May 1958. There was altogether an 83% nominal devaluation from July 1957 to May 1958. This was all along a period of growing difficulties in the balance of payments due to a 33% fall in the international price of coffee (average import price in the United States) from 1954 to 1958 (Bacha and Greenhill, 1992). Despite large inflows of Direct Foreign Investment, fast import growth due to the rapid industrialization process led to increasing current account deficits.

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 13 At that time, Brazil had no Central Bank and the monetary authority duties were performed by two institutions: Sumoc and *Banco do Brasil* (Bank of Brazil). In general, Sumoc acted as a normative body, while the Bank of Brazil had the role of implementing the policies and norms.

14 According to this Instruction, exporters would receive the official rate (Cr\$ 18,50/ US\$) plus a bonus of Cr\$5/US\$ in the case of coffee exports and of Cr\$10/US\$ in the case of the other exports. As for the imports, there were three different exchange rates depending on the imported good: a) official exchange rate (without surcharge) for special imports such as wheat and newsprint; b) official exchange rate plus a fixed surcharge for oil and direct imports of the federal, state and county governments; c) official exchange rate plus a variable surcharge for the other imports being the level of these variable surcharges defined in auctions in which the imports belonging to the third group were divided into five different categories according to their essentiality, based on criteria established by the government (Vianna, 1990, p.139-41).

15 An explanation for this event – following the same approach but adopting an alternative methodology – is given in Bastos and Costa (1921).

In *Episode 4* (from February 1961 to April 1964, lowest inflation rate at 28% and highest at 94%) inflation upsurge was also due to external shocks. This time the triggers were the 51% nominal exchange rate devaluation (from December 1960 to April 1961) and the reduction in the imports subsidies (for oil and wheat) in the first months of the year 1961. According to Malan (1981), those measures had an immediate impact on inflation rates, so that wholesale prices rose 15.5% in the first semester (Malan, 1981, p.94). Moreover, it is also worth mentioning that the government further dismantled multiple exchange rate systems throughout 1961 by a series of “measures that brought greater unity to the foreign exchange system” (Baer, 2001, p.58).

After inflation slowed down a bit for a short period in mid-1962, rates accelerated again in November 1962 following a 30% devaluation in the exchange rate that occurred from July 1962 to October 1962, which was again reinforced by another devaluation in the first semester of 1963. During this period, the country was experiencing a period of political unrest and economic crisis. Given that annual inflation rates were around 50%, the cost shocks due to the exchange rate devaluation triggered a wage-price spiral, enhanced by the political difficulties that João Goulart’s presidency (1961-64) was facing. On the one hand, the president did not have the support of US authorities to get access to funds to face debt payments in the short run. On the other hand, his connections with the labor movement did not leave him much freedom to impose restrictive wage policies, nor to adopt other contractionary policies. Such a turbulent chain of events led to the military *coup d’état* of April 1964 and to annual inflation rates reaching 90% by then.

The dictatorship implemented in 1964 faced much better international conditions and the 1964-73 period was one of abundant foreign currency. At the climax of the so-called *golden age of capitalism*, fast export growth and unprecedented access to booming international finance allowed for low pressure on the exchange rate and relatively low inflation rates – especially from 1968 to 1973 – in a scenario of fast economic growth. Furthermore, the military regime had the support of the US government, which allowed for the renegotiation of the external debt. Both conditions helped the country to increase its access to external funds. For example, Brazil was the fourth largest receiver of funds from AID between 1964-67, only behind India, Pakistan and South Vietnam (Lara Resende, 1982, p.782-

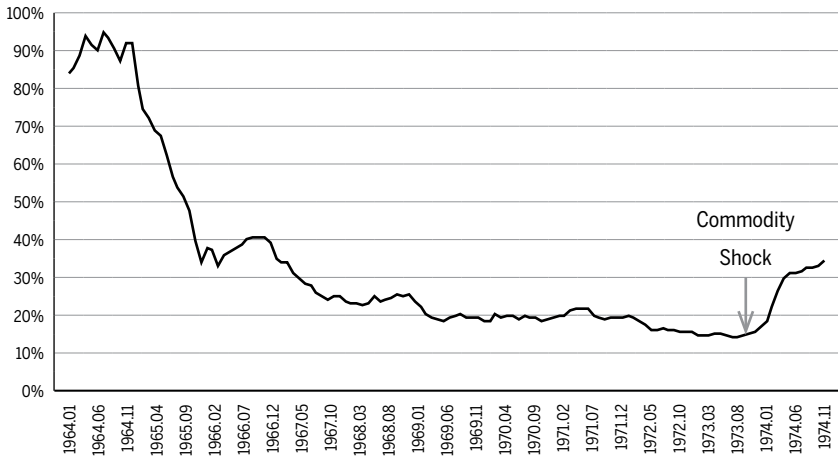
783). Under these favorable external conditions, it was not surprising that the adjustment program launched by the authoritarian government in 1964 – the so-called *Programa de Ação Econômica do Governo* (Government's Economic Action Programme, PAEG) – was successful in bringing inflation rates down. From 1967-8 until 1973, inflation rates were around 15-20%, a reasonably low level for Brazilian standards at that time.

It is worth mentioning that in the beginning the PAEG's strategy included the devaluation of the exchange rate, which was supposed to correct a long-time overvalued exchange rate. It is nonetheless also important to point out that PAEG's policymakers feared an exchange rate-prices-nominal wages spiral due to this cost-push shock. Therefore, they introduced a regressive wage rule that caused a huge real wage drop in the following years. This policy was intended to bring down inflation stepwise using an ingenuous wage indexation scheme. Wages were adjusted to their past two-year average plus the expected future rate of inflation. If the expected inflation rate and the actual inflation rate were exactly equal this indexation scheme would have been able to bring inflation down without real wage losses. However, this was not the case, due to several reasons such as, for example, a deliberate increase in administered public prices intended to reinforce state-owned enterprises' revenues. Therefore, inflation was brought down by controlling nominal wages, or sub-indexing them, combining lower inflation and real wages.

In 1967 the government established a crawling peg regime with two basic purposes. First, it was intended to establish a competitive real exchange rate. Second, it aimed at smoothing out the international capital flows that at that moment were beginning to pick up with the development of the international "Eurodollars" market. The shortening of the exchange rate indexation lag could have positively affected the rate of inflation in the period, but the (previously mentioned) sub-indexation of nominal wages dampened the price-wages spiral.

Figure 2 shows inflation rates falling during the 1964-73 period until the 1973 First Oil Shock. Brazil had to import most of its oil, so that the oil prices hike meant a major cost shock. The government's decision to not halt economic growth by pursuing restrictive monetary or fiscal policies made it worse. The First Oil Shock was a turning point in the international economic conditions for countries like Brazil.

Figure 2 External shocks and inflation upsurge (1964-74)



Source: Author's elaboration from Ipeadata.

In this new scenario, inflation rates grew rapidly in 1974 and thus led to the *fifth episode* of inflation upsurge: there was an increase in the rate of inflation accumulated in 12 months from 15% in November 1973 to 35% in December 1974. According to Serra (1982) commodity prices pushed internal basic costs. This situation was aggravated by the oil shock that was already on its way in the second semester of 1973. It should also be pointed out that in 1974 nominal wage indexation rule changed and added an extra cost element to push up inflation rates. The previous rule of nominal adjustment, based on the two previous years' averages, was changed for one-year only. In a period when inflation was accelerating, this measure represented a nominal upward push on wages and consequently on prices.

Episode 6 started by the end of 1975. The following 12 month's accumulated inflation rate moved slightly upward around 25-30% to a new plateau close to 50% (see Figure 3) (Belluzzo and Coutinho, 1982, p.160-161). Once again, the explanation for this episode is a cost-push element associated with the foreign sector, namely the imposition of a compulsory deposit of 100% for 360 days in every import purchase. One might call it *effective* nominal exchange rate devaluation (Bastos, 2002). In terms of the impact on import prices, it had an effect similar to that of an exchange rate devaluation but without the negative consequences on capital flows, of which the country was in dire need in this period. Apart from this change,

other sources of cost-push inflation were relatively stable during these years. The exchange rate kept its crawling peg pattern and there was no change in the wage indexation policy. In brief, what seems most likely is that a change in *inflation* plateau occurred by means of a shock transmitted to the whole economy by means of indexation mechanisms, with the establishment of a higher “stable” inflationary level.

In 1979, Brazil suffered simultaneous shocks: second oil shock, devaluation of the exchange rate, and shortening of wage indexation. More importantly, there was a further change for worse in the international economic environment that would set new parameters for all Latin American economies in the next decade.

This gave rise to the *seventh episode*, in which inflation rose from 45% to 121% between June 1979 and March 1981. The first important exogenous shock was the 110% increase in international oil prices that took place between June 1979 and February 1980. It is interesting to notice that such a price hike was not as sharp as the previous one registered in 1973, but it had a greater impact in Brazil. In 1974 domestic prices of oil products (gas and motor oils) rose 65.7%, while external prices increased 257.32%. In 1979, they increased 160.1% and 110%, respectively. This difference is explained by the strong subsidies to oil prices that existed at the time of the first shock.

The increase in international interest rates also put new external pressure on Brazil's economy, as it made the international capital market less prone to lend money to Latin American countries, which were already indebted and faced renewed problems in current transactions. This lower enthusiasm regarding lending drove an increase in spread values (over the increasing base interest rates) and the shortening of loan terms. The combination of such elements resulted in a *snowball* type of indebtedness with strong negative impacts on the external balance. In such a difficult external situation, it was not possible to avoid a stronger internal impact from the external shock, as had been the case five years before. Attempting to cope with the critical external situation, the economic authorities devalued the exchange rate by around 28% in December 1979, which was an extra cost shock and put greater inflationary pressure on the economy.

At the same time, a change was made to the nominal wage adjustment rule. The new policy established by Law n° 6.708 of September 30, 1979, was not designed to maintain the real wage (as the previous one), or the

average wage obtained in a past period, but to restore a past peak value, adjusting its nominal value to the inflation of the period. This adjustment was not applied horizontally to all wage levels. It was designed to have a distributive effect in favor of lower wages. Workers that were paid up to three minimum wages had their salaries adjusted by a value 10% superior to the past rate of inflation. The adjustment inversely decreased to the value of wages¹⁶. The most important element of this new wage policy was the change in the adjustment periodicity, from a yearly basis to a semester-to-semester one, which contributed to the upsurge of the inflation rate.¹⁷

As a result of these four cost-push shocks (oil shock, interest rates hike, wage readjustments and exchange rate devaluation) happening almost at the same time, it is no surprise that the rate of inflation leaped to a new plateau (Bastos, 2002). In numerical terms, as those shocks were distributed over a certain period¹⁸, we can only see their full effect in the 1980 inflation rate. For instance, the average monthly inflation rate in the second semester of 1979 was 3.8%, whereas the monthly average of the first semester of 1980 was 6%. Consequently, the inflation rate accumulated in 12 months evolved from 41% in December 1978 to 77% in December 1979 and then moved upward to 110% in December 1980. It kept increasing until March 1981 when it reached 121%.

Moreover, the erratic daily administration of Brazil's economy between 1979 and 1982 made entirely ineffective the 1979 exchange rate maxi-devaluation which consequently produced no impact on trade balance. The trade deficit registered in 1980 was almost the same as the one observed in 1979. Meanwhile, the current account deficit was rising due to the snowball indebtedness described before. In brief, with the external situation

16 The adjustment was, in fact, a bit more complicated in the case of salaries above three minimum wages. For example, in the case of workers who were paid "12 times the minimum wage", the adjustment rule was: 10% above inflation for the three-minimum wages "part" of the total wage; the full rate of inflation for the part between three and ten minimum wages and 80% for the remainder "two minimum wages". Workers and firms would freely negotiate the productivity growth rate. This wage policy was changed by the Law n° 6,886 passed on December 10th, 1980. The new rule did not change the main characteristics of the previous one (periodicity and adjustment to replace the past nominal peak), only the percentage of the past rate of inflation associated with different wage level brackets.

17 For a summary on the *universalization* of the indexation system in Brazil after 1979, see Simonsen (1985).

18 The oil price increase started in the second semester of 1979 and extended throughout 1980, the same applying to the prices of other commodities. The new wage adjustment rule, as we said before, was enacted in October and finally the exchange rate devaluation happened in December.

worsening – the current account deficit jumped from US\$ 10 billion in 1979 to approximately US\$ 16 billion in 1982 – the government was forced¹⁹ to devalue the exchange rate once again by a large amount. In February 1983, there was a new maxi-devaluation of the Brazilian currency in relation to the US dollar, leading to the *eighth episode* of inflation rise in the 1951-85 period (from 104% in February 1984 to 236% in May 1984).²⁰

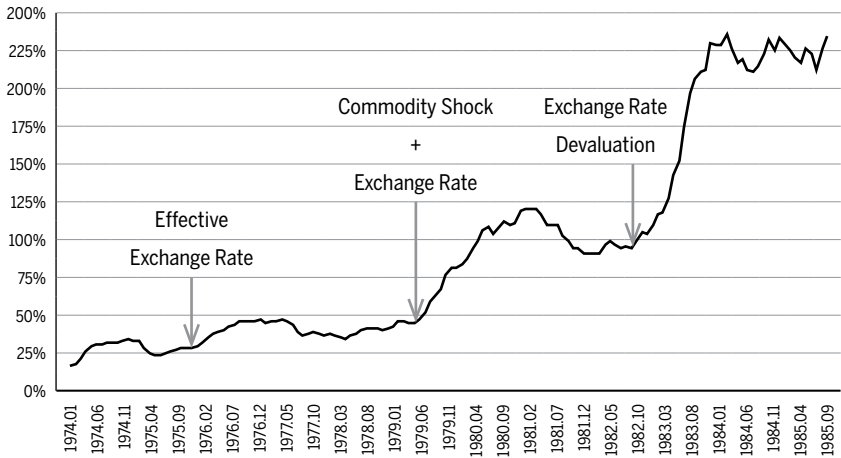
Aware of the inflationary impacts of such exchange rate devaluation, the authorities tried to curb the existing wage indexation and hence the price-wage spiral. Nonetheless, the National Congress rejected these proposals and finally established (by Law n° 2,065) that the automatic wage adjustment would be applicable only to salaries in the range between three to 15 minimum wages. Yet these attempts were not able to prevent the rate of inflation from doubling in 1983 and the purchase power of wages from falling by 15%.

In sum, figure 3 shows that inflation accelerated in three inflation episodes within the 1974-85 period. Moreover, in all of them there was some sort of external shock preceding this acceleration process. Clearly, the 1979 and 1983 shocks pushed inflation rates in Brazil to levels never reached before. Finally, figure 3 also reveals that the rate of inflation *stabilized* around 200% in the years 1983, 1984 and 1985. As previously noted, such a behavior was common during the indexation period: after an external shock, the rate of inflation would move upward from an old plateau and then stabilize in a new plateau. During this period, however, quite distinct macroeconomic circumstances were at stake. The most important one was the extremely auspicious performance on the external front. After the first sizable trade surplus of 1983, the result for 1984 were even larger, with mega-surpluses of around US\$ 13 billion. Even more importantly, such values were obtained with the economy growing at a rate of 5.4% and 7.8% in 1984 and 1985, respectively. The positive performance on the external front allowed the authorities to keep the exchange rate almost constant in real terms.

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 19 At this point – after the Mexican and Polish defaults – the debt crisis for the developing countries was installed. Brazilian and IMF authorities initiated their conversations by the end of 1982 and the exchange rate devaluation was part of the agreement. The exchange rate devaluation was enacted while the first formal letter of intent (the adjustment plan proposed by the Brazilian government) was still being studied by the IMF bureaucracy.

20 According to Batista Junior (1983) this value corresponded to the appreciation of the exchange rate after the previous maxi-devaluation.

Figure 3 External shocks and inflation upsurge (1974-85)



Source: Author's elaboration from Ipeadata.

The rate of inflation remained at a high plateau during the following years. At this point, stabilization was increasingly becoming the government's top priority. In February 1986, the government launched a stabilization plan (Cruzado Plan), which intended to stabilize prices by dismantling the indexation schemes. It was the first of a series of failed stabilization programs until *Plano Real* (Real Plan) of 1994 finally achieved the goal of stabilization.

4 Conclusions

This paper examined in the Brazilian case the cost-push inflation hypothesis linking cost shocks and inflation. For this purpose, it developed a historical analysis of the Brazilian inflation data and evaluated whether external shocks (exchange rate devaluations and/or commodity price shocks) explain Brazil's inflation upsurge episodes in the period 1951-1985.

Among the eight episodes of inflation upsurge detected from 1951-1985, seven were preceded by or concurrent with some type of external shock (foreign exchange devaluation, or commodity price-shocks, or both), suggesting that external shocks were an important trigger behind the inflation upsurge episodes. In fact, the historical analysis suggests that – in most of

the cases – external shocks triggered an internal reaction of distributive variables thus generating a cost-price spiral.

This paper did not attempt to propose an encompassing model for inflation, given the complexity of institutional and political changes that took place in the long period analyzed. However, the data presented here clearly suggests that the exchange rate was a crucial factor behind inflation rates throughout the period, instead of other variables on which, for instance, mainstream economists base their analysis. Whilst external shocks were almost always related to the inflation upsurge episodes, internal public financing (both institutional instruments and the value of the deficit) changed markedly from episode to episode. Moreover, throughout the period, monetary policy also varied significantly, which was also the case when it comes to other structural conditions stemming from some specific components of the aggregate supply, namely agriculture supply and energy production.

Hence, despite changes in other macro and microeconomic variables, external factors truly play a key role in explaining the persistent and predominantly high inflation in Brazil during the period 1951-1985. As observed in Section 2, there are strong reasons to argue that in all seven episodes the devaluations of the exchange rate were due to problems stemming from the high income-elasticity of imports plus the slow growth of commodity exports, and /or the falling terms of trade, and/or world commodity price increases. The latter were sometimes followed by the worsening of external financial conditions due to, for instance, scarce voluntary external financial flows to Brazil. In sum, this historical pattern suggests that the external conditions are crucial to explain the long-term inflationary process in Brazil in the first decades of the second half of the 20th century. In any case, further studies are needed in order to evaluate in greater detail the possible role of fiscal and monetary policies on inflation rates and, more importantly, to further analyze the impact of exchange rate devaluations on the inflation upsurges by means of internal variables, such as workers' wage resistance.

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APPENDIX

A1 Episodes of inflation upsurge

The first month of each episode is the month of the lowest inflation rate before inflation rates started to increase.

Episode 1

July 1953 – May 1954

Lowest rate: 12%

Highest rate: 32%

Episode 2

April 1956 – January 1957

Lowest rate: 14%

Highest rate: 28%

Episode 3

February 1958 – August 1959

Lowest rate: 4%

Highest rate: 42%

Episode 4

February 1961 – April 1964

Lowest rate: 28%

Highest rate: 94%

Episode 5

November 1973 – December 1974

Lowest rate: 15%

Highest rate: 35%

Episode 6

December 1975 – January 1977

Lowest rate: 29%

Highest rate: 47%

Episode 7

June 1979 – March 1981

Lowest rate: 45%

Highest rate: 121%

Episode 8

February 1983 – May 1984

Lowest rate: 104%

Highest rate: 236%

ERRATUM

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“Carlos Pinckusfeld Bastos”

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