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A BRIEF HISTORY OF HYPERINFLATION IN ARGENTINA

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Abstract

A fiscal deficit of 8.5% of GDP, limited access to credit locally and internationally, country risk premiums at default levels and money supply growing at 80% annually, have led some analysts to predict that Argentina might be heading into a “3-digit modern hyperinflation.” Although this opinion is not widely held, the consensus inflation forecast for 2021 is 47%, a level significantly below any definition of hyperinflation but high by global standards (above the 98th percentile). Even more worrisome, over the last decade inflation has shown a persistent upward trend and since January 2019 has averaged 45%. Given all of the above, it is worthwhile investigating when Argentina experienced it and why. This paper attempts to answer the first part of this question. According to a widely accepted view there was only one hyperinflation between 1989 and 1990. This paper argues that Argentina experienced four hyperinflationary episodes that were part of a long-term cycle that started in 1945.

Keywords: Argentina, Inflation, Extreme Inflation, Hyperinflation.

JEL Codes: E31, N16

Resumen

Un déficit fiscal de 8,5% del PBI, acceso limitado al crédito local e internacional, una prima de riesgo país que implica una alta probabilidad de cesación de pagos y una oferta monetaria que crece a una tasa anual de 80%, han llevado a algunos analistas a sostener que la Argentina se encamina a una "hiperinflación moderna de 3 dígitos". Aunque esta opinión no es ampliamente compartida, los principales analistas estiman en promedio una inflación de 47% para 2021, un nivel significativamente por debajo de cualquier definición de hiperinflación pero elevado según estándares globales (uno de los cinco más elevados del planeta). Aún más preocupante es que durante la última década la inflación ha mostrado una tendencia creciente y desde enero de 2019 ha promediado 45% por año. Teniendo en cuenta lo antedicho, vale la pena investigar cuando la Argentina experimentó una hiperinflación y por qué. Esta nota intenta responder la primera parte de esta pregunta. La conclusión es que hubo cuatro episodios hiperinflacionarios dentro de un ciclo de largo plazo iniciado en 1945.

Version Updated [May 2, 21](#)

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A Brief History of Hyperinflation in Argentina

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The actual course of events during inflation has not merely an historical and scientific interest but is of considerable practical importance.

Frank D. Graham (1930)

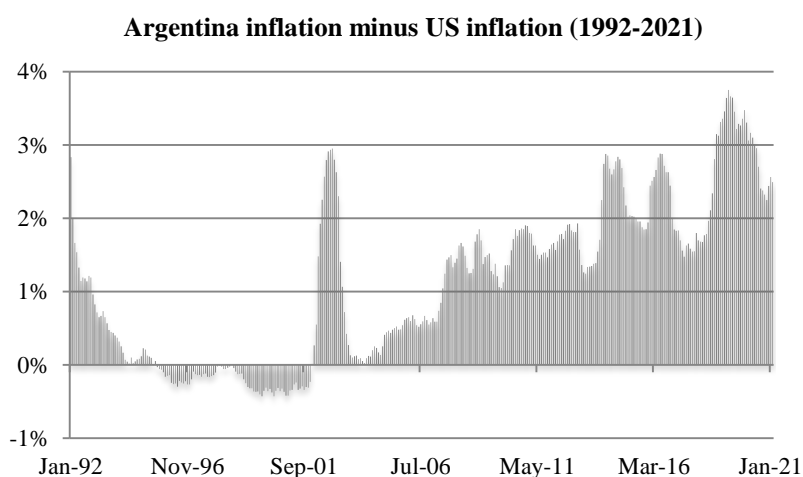
1. Introduction

As Lionel Robbins wrote in the preface to the English edition of Constantino Bresciani-Turroni classic study of German hyperinflation, “there is hardly any branch of the theory of economic dynamics which is not illuminated by examination of its grim events (Bresciani-Turroni, 1931, pp.5-6). Hyperinflation is associated with fiscal and monetary mismanagement and political instability. Determining when it occurs not only has relevance for a better understanding of history but also, and perhaps more importantly, for the design of effective stabilization plans. The issue is how to define hyperinflation. Neither Bresciani-Turroni nor Frank Graham (1930), who wrote the first in-depth study of the German experience, proposed a definition. Decades later, Philip Cagan (1956) analyzed seven hyperinflationary experiences in Europe between 1920 and 1947 to test the quantity theory of money. Cagan’s work became a classic and provided the standard definition of hyperinflation: prices rising more than 50% a month (see Hanke and Krus, 2013).¹

Since 1945, Argentina has consistently led global inflation rankings. Until the early 1990s it shared this distinction with other South American countries such Brazil, Bolivia, Chile, Uruguay and Peru. However, in the last three decades these other countries have managed to bring inflation down to single digit levels, whereas Argentina seems to have taken the opposite direction. Fiscal and monetary anomie, a consequence of a long lasting addiction to populism, is the main explanatory factor of this state of affairs.

¹ Accountants use different criteria to determine whether an economy is experiencing hyperinflation but do “not establish an absolute rate at which hyperinflation is deemed to arise” (see IAS 29, 1987).

A fiscal deficit of 8.5% of GDP in 2020, limited access to debt financing locally and internationally, country risk premium levels implying a sovereign default and money supply growing at 80% annually, have led some analysts in Argentina to predict that the country might be heading into a “3-digit modern hyperinflation” (Iprofesional, 2020).² Although this opinion is not widely held, the consensus inflation forecast for 2021 is 50%. This level is significantly below any definition of hyperinflation but high by global standards (5th highest.) Even more worrisome, over the last decade inflation has shown a persistent upward trend. The average annual inflation rate since January 2019 was 45%.



Source: INDEC and FRED St. Louis.

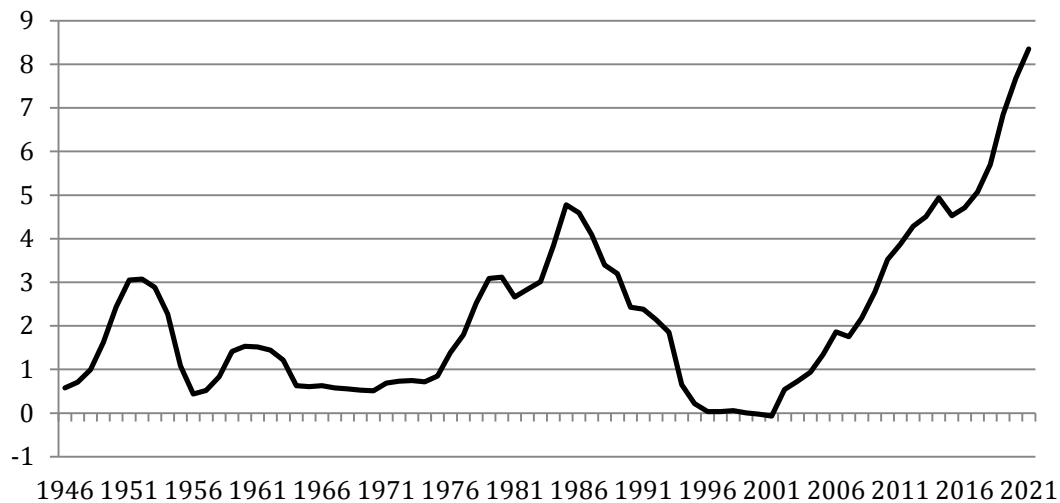
The historical evidence suggests that: a) when a country’s annual inflation rate exceeds 40% for two consecutive years, the risk of a “high inflation crisis” increases sharply (Bruno and Easterly, 1995), and b) persistent annual inflation rates above 50% per annum indicate the beginning of an acceleration phase that usually ends in hyperinflation (Saboin-García, 2018).³

A longer term comparative perspective confirms that current trends are something to worry about. The following graph shows the relationship between Argentina’s inflation rate and that of Brazil, Chile and Uruguay. At some point in the last seven decades all of these countries experienced very high inflation rates by international standards. In fact, it seemed as if inflation was a chronic disease in South American economies. This hasn’t been true for Chile since the 1980s, Brazil since 1995 and Uruguay in the last two decades. When it comes to high inflation Argentina is no longer in the company of its neighbors but of African failed states such as Zimbabwe, Sudan, South Sudan, Ethiopia and Yemen.

² Unprecedented monetary and fiscal expansion in the US have also raised (unwarranted) fears of hyperinflation (see Coy, 2021).

³ Argentina crossed the 40% threshold in September 2018 and has exceeded it in 23 out of 31 months since resulting in an average of 42% for the period ending in March 2021.

Argentina's Inflation in relation to the average of its neighbors (1945-2019)



Note: 5-year moving average of Argentina over Brazil, Chile and Uruguay.
Source: IMF, World Bank and Reinhart and Rogoff (2020).

Before trying to evaluate whether hyperinflation is again in the horizon for Argentina, it is worthwhile investigating when the country experienced it and why. This note attempts to answer the first part of this question. The answer is not as straightforward as it would seem. Section 1 provides a brief summary of several alternative definitions of hyperinflation. Section 2 applies these definitions to the data available for Argentina since 1945. Section 3 proposes some tentative conclusions.

2. Definitions

Frank Graham (1930) was the first economist to use the word hyperinflation to describe the experience of Germany during the early 1920s.⁴ However, Graham used the term generically and clarified “it is, of course, not possible to draw a strict line between high- and hyperinflation but the latter period may be considered to have begun its course [in Germany] about the middle of 1921” (1930, p.79). In fact, as measured by the increase in wholesale prices, the monthly inflation rate for July 1921 averaged 4.6% (p.105), which compounded monthly would imply an annual inflation rate of 72%.

Cagan instead defined a hyperinflationary episode as beginning in the month in which the monthly inflation rate exceeds 50% and ending when it drops and stays below that threshold for at least a year. He admitted in a footnote that this definition was arbitrary but served “the

⁴ In the early 20th century hyperinflation was a medical term used that described an inflammation of the lungs. Polish economist Jerzy Zdziechowski (1925) may have actually been the first to use the term to describe Poland’s inflationary experience in the 1920s. Bresciani-Turroni (1935) who wrote his classic on Germany’s postwar inflation almost at the same time as Graham did not use the term.

purposes of this study satisfactorily” (Cagan, 1956, p. 25).⁵ In a later work, Cagan explained that hyperinflation is “an extremely rapid rise in the general level of prices of goods and services” for which “there is no well-defined threshold. It is best described by a listing of cases, which vary enormously” (Cagan, 1987, p.179). Despite Cagan’s caveats, his definition has become the standard with which economists determine whether a country has experienced a hyperinflationary episode.⁶

Before analyzing Argentina’s experience with hyperinflation it is worth highlighting several points about Cagan’s definition:

- 1) In the case of Germany and Poland, due to lack of reliable data for consumer prices Cagan measured inflation with the Wholesale Price Index (WPI).
- 2) During the seven hyperinflations he analyzed –in Austria, Germany, Greece, Hungary, Poland and Russia– there was no change in government while they lasted.⁷
- 3) Although Cagan did not specify a minimum period for a hyperinflationary episode, none of the cases he studied lasted less than 10 months (Hungary 1923/24). The longest lasted 26 months (Russia 1921/24).
- 4) With the exception of Russia, in no instances the acting government resorted to price and wage controls to bring down inflation (Dornbusch and Fischer, 1986, p.63). Therefore, indices of consumer and/or wholesale prices reflected fairly well the underlying economic situation.⁸ This was not the case in Latin America during most of 1980s and early 1990s (and even today in Argentina). Also, Cagan did not even contemplate the possibility that governments would not report price data (as Zimbabwe in 2008) or distort price indices (as Argentina during 2007-2015). Under such circumstances his definition of hyperinflation is not operational.

Based on Von Mises (1923) and Frenkel (1976), Hanke and Kwok (2009) have argued that when CPI data is not reliable and the inflation rate is high and growing, the best way to measure it applying purchasing power parity (PPP). In other words, under such circumstances the rate of increase of the US dollar in the black market minus the inflation rate in the US would be a good proxy for the domestic inflation rate. However, the data for Argentina and many Latin American countries show that the real exchange rate is quite erratic during

⁵ It is suggestive that in a table summarizing the key characteristics of each hyperinflationary episode in his study, Cagan labeled the beginning and ending month as “approximate” (ibid., p.26).

⁶ Sachs (1987) in his study of the Bolivian case refers to “true hyperinflations” as those that meet Cagan’s definition.

⁷ In the case of Hungary, Cagan studied two inflationary episodes: 1923-1924 and 1945-1946.

⁸ In Germany the general policy of price controls was abandoned at the end of 1921 and only “sporadic action was taken thereafter” (Graham, 1930, p.79).

periods of high and accelerating inflation. According to Dornbusch, Sturzenegger and Wolf (1990), during hyperinflation “real exchange rates are not constant” (p.10). Given the large variations “in the real exchange rate... an assumption of purchasing power parity is far from actual experience” (p.31).⁹ However, given that the real exchange rate is estimated using official exchange rates and domestic price indices that do not reflect economic reality due to the existence of wage and price controls or other type of distortions any conclusion about its variability should be taken with care. Be it as it may, in the same paper these authors argue, based on the German experience of 1922-1923, that although “the foreign exchange value of the dollar is quite unstable, it may still represent a better estimate of the general price level than a guess based on a narrow sample of current and previously reported prices” and conclude that the “evidence supports the idea that exchange rates ultimately become the basis of pricing” (ibid., p.18).

In reality, in economies such as Argentina’s that are heavily dollarized and in which the government regularly intervenes in the foreign exchange, financial, goods and labor markets, using the rate of increase of dollar exchange rate as a proxy for the debasement of the currency seems empirically warranted. Another problem arises when governments maintain a fixed exchange rate and impose strict controls on capital movements and foreign exchange transactions. Under these circumstances, the exchange rate in the black market can serve as a proxy but data is limited and not always reliable.

5) In his original study of hyperinflation Cagan noted that “few ordinary inflations produce such a high rate [50% per month] even momentarily.” However, the dynamics of an economy in which prices increase 50% a month are very similar to one in which prices increase at half that rate. As Dornbusch (1992) put it:

The distinction between hyperinflation and cases of lower and yet extreme inflation is somewhat arbitrary. Whether the inflation rate is really 50% a month or only 20 does not make too much difference because in either case inflation will be the dominant factor in the economy and will overshadow most other issues. Countries experiencing inflation rates of 10 or 15% a month for any length of time are moving toward hyperinflation (Dornbusch, 1992, p.17).

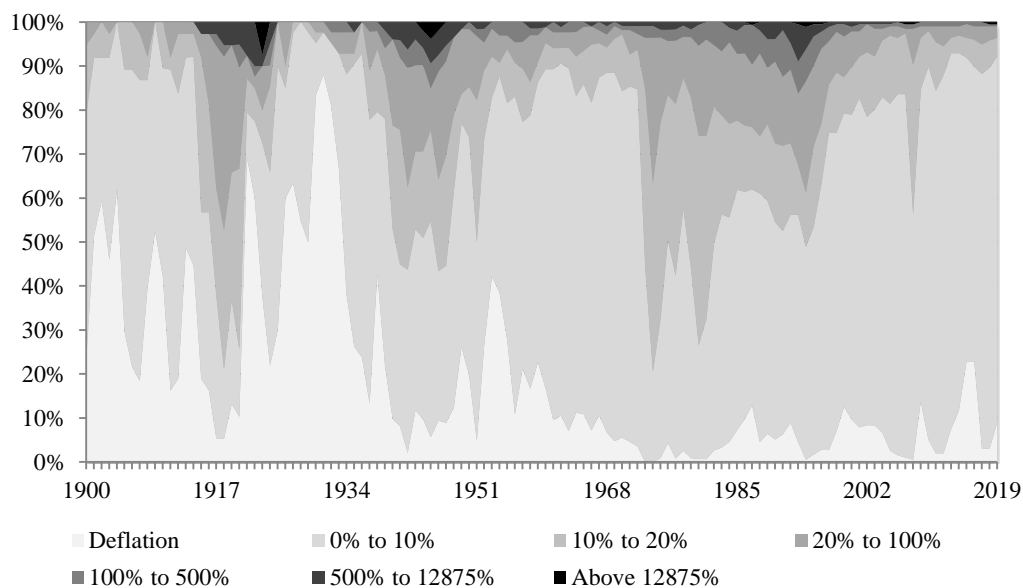
Although useful for the purposes of his study, Cagan’s definition is not so useful when analyzing modern episodes of rapidly rising prices. According to Fischer, Sahay and Vegh (2002) applying Cagan’s definition there were no hyperinflations during the period 1947-

⁹ They point to Argentina as providing the strongest evidence in this regard (ibid., p.45).

1984 and only seven between 1984 and 1996. A recent study by Saboin-García (2018) found that since then only three countries have experienced a “Cagan hyperinflation”: Bulgaria, Venezuela and Zimbabwe.

The following chart measures the proportion of countries that experience different ranges of inflation, according to this definition, since 1945. As can be seen, hyperinflations have become much less common, particularly in the last three decades.

Inflation Rates around the world since 1900



Source: IMF, Reinhart & Rogoff (2010).

Modern episodes of hyperinflation are quite different from those studied by Cagan. Dornbusch, Sturzenegger and Wolf (1990) highlight three main differences: first, they last longer, in some cases extending over more than a decade; second, inflation rates are far below those of Germany; third, in some countries there “a stop-go pattern of inflation-temporary stabilizations” is followed “by major blow ups” (p.5). According to Reinhart and Savastano (2003) European hyperinflations in the 1920s “sprang up swiftly and were rapidly brought to an end, without much cost to employment and output, after governments implemented drastic fiscal and monetary reforms that restored currency convertibility and gave central banks independence to conduct monetary policy”, whereas modern hyperinflations “have not been short and swift”, and in most cases, they have been “preceded by years of chronic high inflation” (p.21).

All of the above considerations suggest the need for a different approach to define hyperinflation. Salama and Valier (1990) provided a richer conceptual definition that is also quantitatively imprecise. Kiguel (1989) defined it as “an inherently unstable process which

countries could experience even if inflation remains below the 50 percent level arbitrarily set by Cagan” (p.148) that is “triggered by the government's attempt to obtain seigniorage in excess of revenue-maximizing inflation” (pp.149-150). Rodriguez (1994) also defined it as occurring when the inflation rate exceeds the rate at which “steady-state seigniorage” is maximized. Under this definition quantification is possible but technically complex particularly for periods of less than a year (see Kiguel and Neumeyer, 1989). In a cross-country study covering the period 1960-1990, Easterly, Mauro and Schmidt-Hebbel (1995) estimated optimal seigniorage for a sample of countries that experienced chronic and stable inflation, chronic and moderate inflation interrupted by high-inflation episodes (including hyperinflation), and chronic and explosive price rises. In their study, they consider hyperinflation as coinciding roughly with quadruple (or more) digit levels annually.

Heymann (1986) uses the term “great inflations” to describe a heterogeneous group of relatively short episodes (usually less than a year) which took place in Europe and during which annual inflation rates ranged between 4300% (Hungary 1923/24) and the equivalent of almost 20,000% per month (Hungary 1945/46). Dornbusch, Sturzenegger and Wolf (1990) define hyperinflation as a situation in which annual rates exceed “a modest” 1,000% and extreme inflation as one in which monthly rates exceed 15-20% for “several months” (without specifying how many).¹⁰ According to these authors, the origin of both can be “a major shock to the budget, the terms of trade, or the exchange rate is an essential ingredient for high inflation” and also a “political disturbance –in its most extreme form, war– or an abrupt international credit rationing may trigger the inflation.” They conclude that countries that “do not experience such shocks are unlikely candidates for an extreme inflation” (ibid., pp.2-3).

After examining data for 127 countries over the period 1961-1992, Bruno and Easterly (1995) found that 40% per annum is a critical inflation threshold, which if it persists over a two-year period, significantly increases the probability of a “high inflation crisis” that can last several years (Argentina was the outlier at 20 years).¹¹ According to Heymann and Leijonhufvud (1995) high inflation occurs when those who live with it quote the inflation rate on a monthly basis and treat annual rates as meaningless, which, in their view, happens with levels around 5% per month (which would imply a “meaningless” 80% per year). Fischer, Sahay and Vegh (2002) argue that “both popular usage—which often refers to triple digit inflation as hyperinflation—and the literature have tended to treat 100 percent as a distinguishing line between high and extraordinary inflations.” They use the term “very high inflation” to

¹⁰ These thresholds are inconsistent with each other. A 20% monthly inflation rate compounded monthly yields an annual rate equal to 792%.

¹¹ Bruno and Easterly (1995) use end of year data which approximates to 50% annually when comparing average to average.

describe episodes in which the 12-month inflation rate stays above 100% per annum. After analyzing data for 133 countries, they found 45 such episodes, the longest of which were in Argentina (17 years), Brazil (15 years) and the Democratic Republic of Congo (15 years). There are other definitions of high inflation and hyperinflation that are conceptually sound but not operational for an empirical study.¹²

In his comments to Dornbusch, Sturzenegger and Wolf (1990), Stanley Fischer observed that “hyperinflations occur in countries with socially and politically divided populations, and weak governments” and suggested further work “to clarify the necessary and sufficient conditions” for its emergence (Fischer, 1990, p.67). There hasn’t been much progress on this front, probably because since 1990 most countries have experienced disinflation (even in South America).¹³

By focusing on long-term cycles as opposed to discrete episodes, Saboin-García (2018) not only provides an alternative to the typical definitions of earlier studies but also addresses the issue Fischer raised. According to his definition, a hyperinflation cycle comprises two major stages with two sub-stages each:

- The first stage (Rise) is composed of: (1) the “extraordinary acceleration phase”, defined as a period prior to the hyperinflation in which the average annual inflation rate is between 50% and 500% per annum; and (2) the “hyperinflation phase”, defined as the period in which average annual inflation is greater than or equal to 500% per annum
- The second stage (Fall) is made up of (3) the “disinflation phase”, defined as a period after the hyperinflation in which average annual inflation is between 50% and 500% per annum and (4) the “stabilization phase”, which is defined as the period in which it falls below 50% and which remains below this threshold for a minimum period of 5 years.

The duration of each hyperinflation cycle is the number of years in which the inflation rate is within the established thresholds, allowing the existence of deviations within each threshold for periods less than or equal to five years. Using data for 196 countries over a period 57 years, he estimated that the duration of an average hyperinflation cycle was 16-17 years with an annual average inflation of 893% (a median duration of 14 years and a median annual inflation of 45%). Congo Democratic Republic and Argentina are the two countries with the longest hyperinflation cycles (31 and 25 years respectively).

¹² Rodriguez (1994) defined hyperinflation as happening with the inflation rate exceeds the rate of inflation that maximizes steady-state seigniorage.

¹³ See Ocampo (2020) for an analysis of the global disinflation wave of the last three decades.

Equally important and partially addressing Fischer’s comment, Saboin-García empirically tested the impact two non-economic variables on hyperinflation: 1) an index of economic freedom (Heritage Foundation), to measure the impact of changes in economic freedoms on economic performance, and 2) an index of country risk index (International Country Risk Guide, ICRG), which measures socioeconomic, institutional and political conditions. He concludes that hyperinflation cycles seem to occur in economies “with high presence of natural resource rents (and potentially higher state intervention in the economy) and where economic freedoms have been diminished, especially those related to property rights and the ease of doing business and economic exchange”; they also coincide with contexts “in which socioeconomic conditions such as employment and real wages deteriorate, where the rule of law and democratic accountability are subdued, the instability of the government increases and there is a greater presence of military personnel over political issues” (2018, p.4). As to the end of the cycle, it occurs when: (a) fiscal accounts are brought into balance and base money growth decreases substantially; (b) increasing trade integration, sustainable foreign debt and a slower devaluation of the currency with less volatility in the exchange rate; (c) economic freedom increases and there is greater government stability and institutional quality.

Alternative definitions of Hyper, Extreme and High Inflation

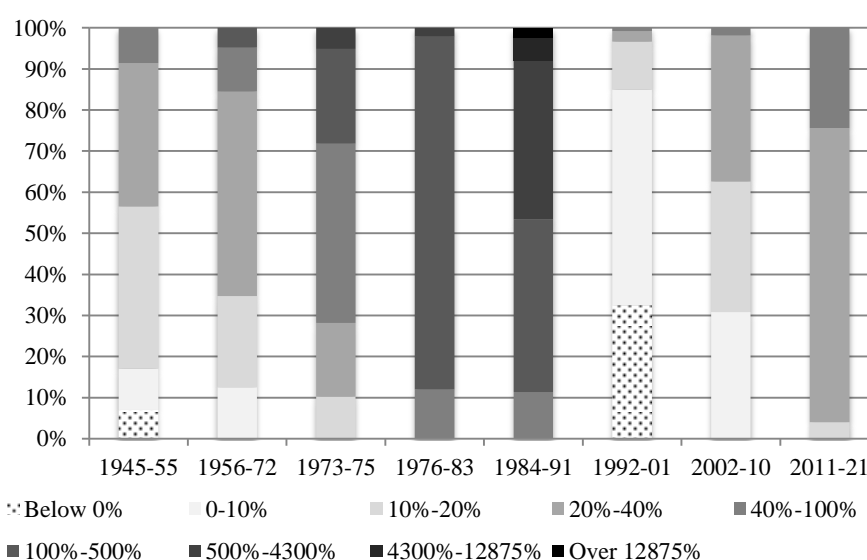
Author	Type	Lower limit		Upper Limit		Length
		Monthly	Annual	Monthly	Annual	
Cagan (1956)	Hyper	50.0%	12875%			None
Heymann (1986)	Great	37.0%	4300%			None
DSW (1990)	Hyper	22.1%	1000%			None
Saboin-García (2018)	Hyper	16.1%	500%			One month or more
DSW (1990)	Extreme	15.0%	435%			"Several months"
FSV (2002)	Very High	5.9%	100%			Two or more years
Harberger (1978)	Acute	5.0%	80%			Three years or more
Bruno and Easterly (1995)	High	2.8%	40%			Two years or more
Dornbusch and Fischer (1993)	Moderate	1.2%	15%	2.2%	30%	Not specified
Harberger (1978)	Acute	1.5%	20%			"Several years"

In summary, all definitions of hyperinflation are arbitrary. A good definition must be based on the empirical evidence and should result from the answer to the following question: above which level of monthly inflation (and for what period of time), countries experience the same consequences with similar intensity: demonetization, collapse of the value of the domestic currency, growing fiscal deficits, and accelerating frequencies of wage and price adjustments.

3. High Inflation, Extreme Inflation and Hyperinflation in Argentina

Since 1945, Argentina has experienced one of the world’s highest inflation rates. Except during the period 1991-2001, successive governments have been unable to stabilize the currency on a sustainable basis (Ocampo, 2017). In their analysis of Argentina’s inflationary experience, Dornbusch and Fischer (1986) observed that “the standing problems of the Argentine economy are budget deficits and real wage demands that lead to loss of competitiveness, payments crises, depreciation and inflation” (p.50). This comment was made before the 1989-1990 hyperinflation. The same observation would be valid today except that in the last four decades all the problems mentioned by Dornbusch and Fischer have grown worse.

Inflation Levels in Argentina since 1945



Note: The chart measures the proportion of each range of inflation levels during the specified periods of time.
Source: Central Bank of Argentina and INDEC.

In recent years annual inflation rates have exceeded the 50% level, which according to Bruno and Easterly, is a dangerous threshold that can usher a “high inflation crisis.” Given such a long experience with inflation and so many failed stabilization plans one may wonder whether some kind of collective learning disability prevails. Be it as it may, in its long lasting addiction to rising prices, Argentina also experienced extreme, great and/or hyper- inflation.

Episodes of extreme inflation and hyperinflation are not only associated with fiscal and monetary mismanagement but also with political instability. Determining when they occurred has important implications for the design of effective stabilization plans and for a better understanding of history.

Based on a strict interpretation of Cagan’s definition, most authors have argued that Argentina experienced only one hyperinflationary episode in its history. According to Fischer, Sahay and Vegh (2002), Reinhart and Savastano (2003) and Hanke and Krus (2013), this episode lasted from May 1989 until March 1990, with a monthly peak of 197% in July 1989. But even under Cagan’s original definition and using the WPI, Argentina experienced a brief hyperinflationary episode in 1975-1976. It also came very close to experiencing another one in mid 1985.

Bruno and Easterly (1995) estimated that Argentina’s “high inflation crisis” lasted from 1972 until 1991 with an average annual inflation of 254%. According to Easterly, Mauro and Schmidt-Hebbel (1995) Argentina experienced high inflation between 1975-1988 and hyperinflation in 1989-1990. Fischer, Sahay and Vegh (2002) estimate that Argentina had “very high inflation” from July 1974 until October 1991. According to Saboin-García (2018), the 12-month inflation rate only exceeded 500% between 1972 and 1991, with those years marking the beginning and the end of Argentina’s hyperinflation cycle. This cycle had the following phases: extraordinary acceleration phase (1972-1983), hyperinflation (1984-1990), disinflation phase (1991) and stabilization phase (1992-1996).

The table below summarizes how many months fit each of the definitions discussed above using the CPI and the WPI to measure inflation:

When did Hyperinflation occur?
(number of months per period)

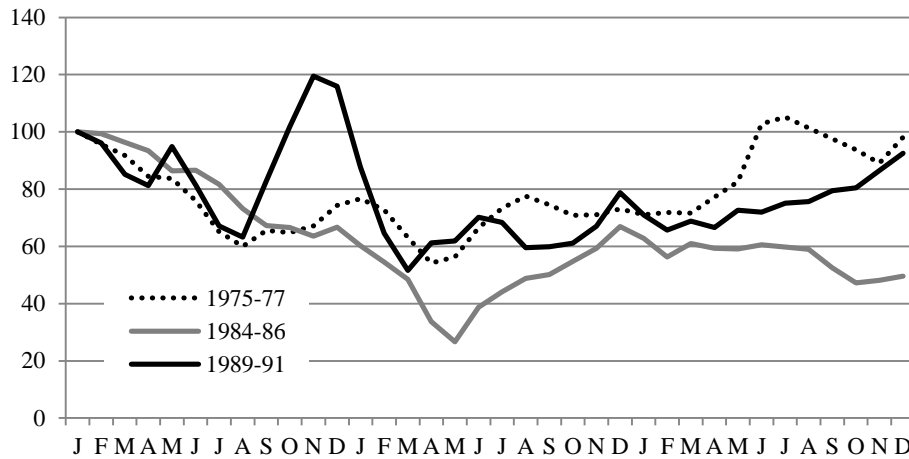
Period	Hyperinflation					Extreme
	Cagan (50% p.m.)	Heymann I (4300% p.a.)	Heymann II (37% p.m.)	DSW (1000% p.a.)	Saboin-Garcia (500% p.a.)	DSW (15% p.m.)
<i>Using the CPI</i>						
1975-76	0	0	1	0	4	7
1984-85	0	0	0	3	19	16
1988-89	3	1	5	7	8	12
1990-91	3	6	3	12	14	6
<i>Using the WPI</i>						
1975-76	1	0	2	0	4	7
1984-85	0	0	1	1	19	16
1988-89	4	2	5	8	12	12
1990-91	3	5	4	11	13	5

Note: Using the CPI as a measure of inflation.
Source: INDEC, BCRA and Jorge Ávila for FFX.

A common feature of extreme inflation and hyperinflation is a significant decrease in real cash balances as inflation accelerates (Cagan, 1956, pp.86). It is interesting to compare the

evolution of the real monetary base in the three periods during which there was hyperinflation or extreme inflation. The largest relative drop was during 1984-1985, which according to Cagan’s definition would not even qualify as hyperinflation. Interestingly in May 1985, real cash balances were at 27% of the levels prevailing fifteen months earlier. Five out of the seven hyperinflationary episodes in Cagan’s original study showed similar declines in real cash balances.

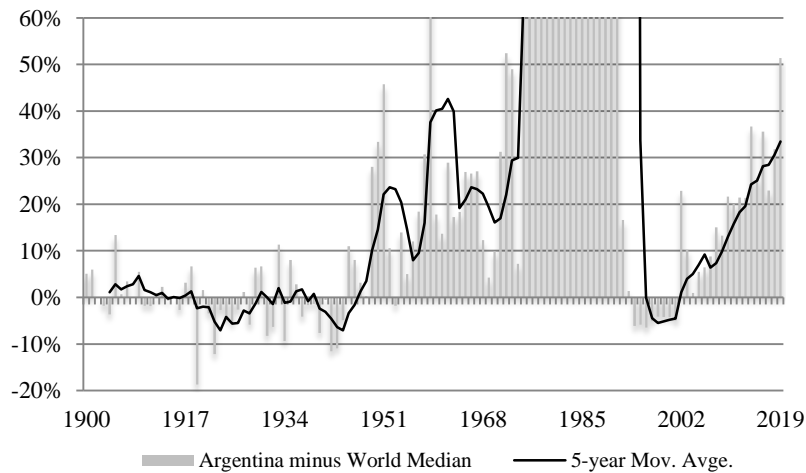
Evolution of the Monetary Base in Real Terms (January=100)



Source: Central Bank of Argentina and INDEC.

Saboin-García (2018) hypothesized that Argentina’s “hyperinflation cycle” started in 1972 and ended in 1991. The following chart, which shows the evolution of the difference between Argentina’s annual inflation rate and the global median for the period 1900-2019, suggests that this phase actually started in 1945, when a long-term cycle of populism began.

Argentina and the World’s Median Inflation since 1900



Note: The inflation scale is limited at 100% per annum to make it easier to visualize the data.
Source: IMF, Reinhart & Rogoff (2010).

To conclude, a more nuanced interpretation of the evidence suggests that Argentina experienced four hyperinflationary episodes in 1975-1976, 1984-1985, 1988-1989 and 1990-1991 (see the Appendix includes more detailed information about each episode.) These episodes seem to have been part of a long-term hyperinflation cycle that started in 1945 and ended in 1991.

Populism, Fiscal and Monetary Anomie and Inflationary Cycles

After being elected president in February 1946 Perón established two policies that have since become characteristic of the Argentine economy: 1) radical protectionism of an inward oriented and inefficient manufacturing sector, and 2) a corporatist relationship between labor unions and the state (Waisman, 1989). The first divorced domestic and international prices, and the second, wages and productivity. In essence, the state became the key decision maker in the allocation of economic resources, triggering a struggle among interest groups to control it. The implementation of this regime led to sub-par economic growth and chronic inflation. A third element of the Peronist system was the fusion of labor unions and the Peronist Party. This ensured lasting political influence but also contributed to political instability.

The persistence of a populist economic system led to fiscal and monetary anomie. The term dates back to ancient Greece but was popularized in the late 19th century by French sociologist Emile Durkheim (Defiem, 2015, p.719). Etymologically, it is derived from the Greek word *anomos*, which means lawlessness. More generally, anomie describes a situation where laws or norms of interaction are not followed or respected. This is the meaning used in this paper. Recurring crises, an institutionally weak political system with perverse incentives and certain predominant cultural beliefs have reinforced this condition (Ocampo, 2020).

Argentina’s Fiscal Accounts and Inflation in Historical Perspective

Country	Primary Fiscal Balance (% of GDP)	Net Fiscal Balance (% of GDP)	Public Debt (% of GDP)	Average Inflation Rate	GDP per capita Growth Rate
<i>1918-1939</i>					
Argentina	0.1%	-1.6%	21.2%	0.0%	2.0%
Australia	0.9%	-0.8%	70.4%	2.1%	1.0%
Canada	0.8%	-1.9%	78.0%	1.7%	0.9%
US	-1.4%	-2.4%	27.8%	1.6%	2.2%
<i>1945-2019</i>					
Argentina	-2.4%	-4.5%	143.0%	143.0%	1.1%
Australia	0.0%	0.0%	5.5%	5.5%	1.9%
Canada	0.7%	-2.0%	3.9%	3.9%	1.9%
US	-0.7%	-2.7%	3.7%	3.7%	1.9%

From 1955 until 1972 Argentina struggled to get rid of the legacy of populism alternating between military and democratically elected governments. With high inflation rates and relatively low growth it lost ground against any comparable country. For most of this period Peronism was proscribed and although it exerted considerable political influence through the labor unions, such influence was attenuated during military regimes (1955-1957 and 1966-1972). Until 1970 decision makers in the private sector believed there was a high probability that Perón would not return to power. However, by mid 1972, after six years of military rule, it seemed clear to any well informed observer that: a) Argentina would soon have a presidential election, and, b) Perón would win it. His landslide victory the following year confirmed that Peronism would be a permanent feature of Argentine life.

Peron's death in July 1974 triggered internal fights within the Peronist Party that led to the political and economic chaos that provoked Argentina's first brush with hyperinflation. The military regime that governed Argentina between March 1976 and November 1983 never tackled the serious underlying structural problems of the Argentine economy. The inevitable result was stagflation. Alfonsín's victory in 1983 rekindled hopes that Argentina could be governed democratically by a non-Peronist. But he embarked on classic populist economic program of demand stimulus and fiscal profligacy that aggravated the imbalances he had inherited from the military regime (which in turn had compounded the problems it had inherited from the Peronist government it ousted in March 1976.) Without structural reforms and fiscal adjustment, the Austral and Primavera Plans were doomed. Hyperinflation ensued.

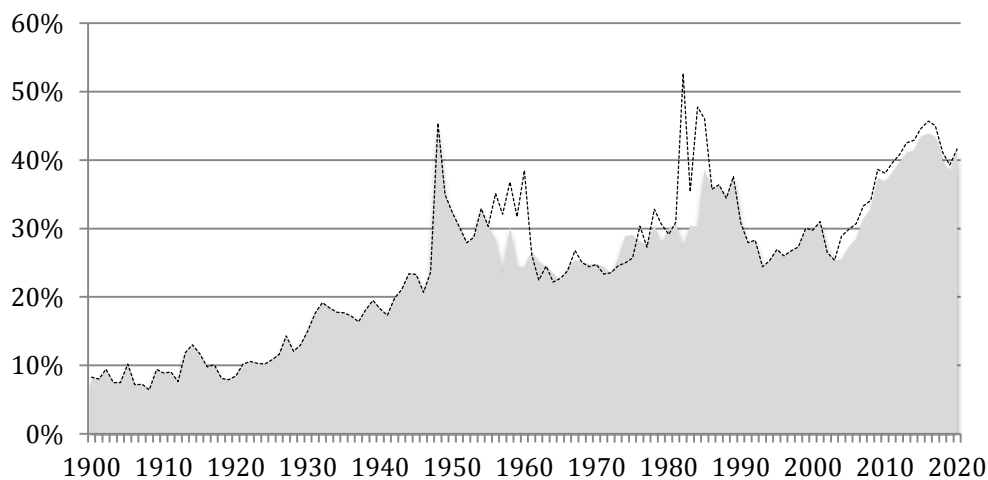
The fact that Alfonsín had to surrender power six months ahead of schedule confirmed a widely held belief that a non-Peronist could not govern Argentina democratically. His successor, Carlos Menem, a Peronist, had made wild promises during the presidential campaign (the main element of his platform was a "*salariozo*", which meant a massive wage increase decreed by the government). However, the hyperinflation cycle surprisingly ended in 1991 after Menem embraced fiscal and monetary discipline, free markets, privatization and foreign investment and tried to heal the deep wounds opened by Peronism in 1946.

The Convertibility Plan was the only serious and sustainable effort to eradicate inflation since 1945. The victory of Fernando De La Rúa at the head of a center-left coalition in 1999 raised hopes that it would be possible to preserve Menem's economic reforms while improving overall institutional quality. The December 2001 crisis dashed such hopes. The Kirchners, who rose to power in 2003, decided to follow Perón's original playbook to a tee: hostility to foreign investment, protectionism, interventionism, crony capitalism, clientelism, nepotism and corruption. Just like in 1946, the upswing of the commodity super-cycle provided the

resources to finance a populist bash (also at the expense of the agricultural sector). But in mid 2012 with the start of the downward phase of the commodity cycle, the economy started to unravel. The election of Mauricio Macri in 2015 again raised hopes that Argentina would leave populism behind. Cristina Kirchner’s return to power of suggests that shaking off populism is unlikely in the short and medium term. A persistently high and growing inflation rate, historically high fiscal imbalances, rapid growth in monetary aggregates and a stagnating economy may signal the “acceleration phase” of a new hyperinflationary cycle.

After a decade of price stability, the crisis of 2001 ushered a new cycle of populism that seems to have started the “acceleration phase” of a new hyperinflation cycle. As in the past, the main culprit behind accelerating inflation rates is structural fiscal unsustainability, which in turn is the result of increasing government spending above the levels that the economy can tolerate without significant losses in terms of output and productivity. As Ribas (1980) pointed out decades ago, a high level of government spending is the main cause of inflation and its low productivity explains the country’s declining standard of living (p.98). The graph below shows government spending as a % of GDP since 1900. Whenever this ratio exceeded 30% a new high inflation cycle began.

Government Spending as % of GDP



Source: Cavallo (2013), Ferreres (2010), IMF WEO. The dotted line is the quasi-fiscal deficit generated by the Central Bank.

With limited access to credit locally and internationally, policymakers’ unwillingness to consider structural reforms leaves them with only one option to finance high and persistent fiscal imbalances: deficit monetization. Without a change in economic policy, it is likely that Argentina will reach the second phase of this new hyperinflation cycle in a not too distant future.

1975-1976: Pricking the Populist Bubble

In June 1975 the monthly inflation rate, as measured by the increase in the CPI, exceeded 20% for the first time in Argentine history. For the next eleven months it averaged 21%, reaching a maximum of 38% in March 1976.

According to a narrow interpretation of Cagan's definition, this would not qualify as a hyperinflation. However, there are three reasons to question this conclusion. First, the difference between a monthly inflation rate of 37.6% (the highest level reached during the period 1975-1976 as measured by the CPI and a threshold provided by Heymann) or 50% (the threshold defined by Cagan) is, for all practical purposes, irrelevant. Particularly given that the government had imposed strict price controls on most consumer goods included in the CPI (Sturzenegger, 1991, p.113).

Second, the evolution of the WPI provides a more realistic picture of the underlying inflationary situation in 1975-76. In June 1975 it increased by 42.5%, which although lower than Cagan's threshold, marked the beginning of price spiral that peaked in March 1976 when it rose 54.1% (the price of imported goods increased by 88%, driven in part by the devaluation of the official exchange rate). Therefore, using this measure, the same Cagan used to measure inflation in Germany and Poland, Argentina technically entered hyperinflation in March 1976. The hyperinflation ended the following month.

Third, if we use the dollar exchange rate as a proxy for inflation, Argentina entered hyperinflation in either September 1975, when the dollar exchange rate increased 44%, or in January 1976, when it increased 53.7%. It is worth noting that during the period June 1975-March 1976 the peso lost 97% of its value against the US dollar.

Extreme inflation and Hyperinflation in Argentina

Measure	Start	End	Duration (months)	Avge. Monthly Δ%	Maximum Monthly Increase	Type	
WPI	Mar-76	Apr-76	1	40.0%	54.1%	Jan-76	Hyper
US\$ official FX	Jun-75	Mar-76	9	17.2%	127.4%	May-76	Hyper
US\$ free FX	Jan-76	Feb-76	1	45.7%	53.7%	Jan-76	Hyper
CPI	Jun-75	Jun-76	12	20.7%	38.0%	Mar-76	Extreme
WPI	Jun-75	Apr-76	10	23.6%	54.1%	Mar-76	Extreme
US\$ free FX	Sep-75	Mar-76	7	16.2%	28.0%	Jun-76	Extreme

More importantly, during this period money and prices exhibited the same dynamics as in 1989-1990 and in other hyperinflations in Europe and Latin America. First, erratic and rapidly declining real cash balances (Cagan, 1956, pp.25, 86, Sachs, 1987, p.44.) Second, a

gradual replacement of domestic money by foreign exchange for the fulfillment of “the traditional roles of money as a unit of account, as a store of value, and as a medium of exchange” (Frenkel, 1977 p. 668).

Hyperinflation was brought to an end by a military coup on 24 March 1976. An abrupt change in the political situation and economic policy led to different expectations about the future trajectory of the money supply and the primary fiscal balance. However, the new government never managed to bring inflation below 100% per annum on a sustainable basis.

1984-1985: Economic Populism with Good Manners, 1st Round

“In 1985, after 40 years of financial instability, Argentina reached once again near-hyperinflation conditions. Budget deficits were the immediate cause, but the deeper roots must be seen in ill-fated policy experiments of the 1970s (Dornbusch and De Pablo, 1987, p.37). The military government that took over in March 1976 stopped hyperinflation but never managed to bring annual rates below 80%. A combination of an expansive fiscal policy and a restrictive monetary policy, led to a significant overvaluation of the currency and massive capital flight. This combination sowed “the seeds of financial destruction” that eventually led “to the inflation explosion of 1981-84” (ibid., pp.44-45). The macroeconomic situation rapidly unraveled during 1981 leading to a balance of payments crisis and an acceleration of inflation. Argentina’s defeat in the Malvinas war in April-June 1982 forced the military to relinquish power and allow free elections. In October 1983, Raúl Alfonsín, of the UCR Party, was elected as Argentina’s new president. Although to a lesser degree, Alfonsín’s economic policy was essentially similar to the one applied during 1973-1974: increases in nominal wage and public spending, monetization of a growing fiscal deficit, price controls and interventionism. By early 1985 Argentina was again facing the specter of hyperinflation and economic disintegration. In June the CPI increased 30.5% while the WPI increased by 42.4%. Alfonsín then made a bold move and launched the Austral Plan, a heterodox stabilization plan that combined traditional monetary reform with income policy. The plan was successful in bringing inflation to single digit levels and put an end to this episode of extreme inflation (bordering on hyperinflation).

Measure	Beginning	End	Duration (months)	Average monthly Δ %	Maximum Monthly Δ%	Month	Type
CPI	Sep-83	Jun-85	22	22.1%	30.5%	Jun-85	Extreme
WPI	Sep-83	Jun-85	22	22.8%	42.4%	Jun-85	Extreme
US\$ official FX	Aug-84	Jun-85	11	26.5%	41.8%	Jun-85	Extreme
US\$ free FX	Jan-84	Jun-85	18	21.7%	36.6%	Nov-84	Extreme

1989-1991: Full on Hyperinflation

“Argentina never stabilized, though there was no shortage of programs. Starting with the Austral plan, a new one was launched at least once a year. But they all failed because fiscal policy never decisively changed (Dornbusch, Sturzenegger and Wolf, 1990, p.45). By August 1988, the monthly inflation rate again exceeded 25%. The government responded with the Primavera Plan that had the initial support of the World Bank. However, in the face of growing political discontent, its effectiveness was short-lived. The decision by the Central Bank to float the peso on 6 February 1989 marked the beginning of the end of the Primavera Plan. By April, as the monthly inflation rate reached 33.4%, Alfonsín appointed a new Economy Minister. In May he lost the election against the candidate of the Peronist Party, Carlos Menem, who had campaigned on a classical populist program. In July, as Menem was sworn in, the CPI increased 197%.

Regarding the hyperinflation in 1989-1991, the debate centers on whether to consider it as one or more episodes and to determine its (their) approximate beginning and end. Kiguel and Liviatan (1995), Kiguel (1999) and Hanke and Krus (2013), among others, consider it as one; Damill and Frenkel (1990), Graziano (1990) and De Pablo (2013) as two separate ones. Under a strict interpretation of Cagan’s definition the former would be correct. However, non-economic considerations suggest that considering them as two is more useful to understand the dynamics of the inflation rate and government attempts to stabilize prices.

In July 1989 there was a change in government and economic policy. Instead of following his campaign promises, Menem sought the advice of Bunge y Born (BB), the largest industrial conglomerate in Argentina and a traditional bugbear of Peronist rhetoric. On July 9, BB’s CEO became Argentina’s Minister of Economy and announced measures that generated favorable expectations. The so-called BB Plan was an orthodox stabilization plan that liberalized wages and prices and relied on the exchange rate as a nominal anchor. It also contemplated a drastic fiscal adjustment and major structural reforms that included the privatization of several money-losing state owned enterprises. By October 1989 the monthly inflation rate had fallen to 5.6%. Despite the recent hyperinflationary experience, the behavior of interest rates and exchange rates until the third week of November suggests that the market did not expect an inflation explosion but rather a devaluation followed by stabilization (Damill and Frenkel, 1990, p.55).

However, the initial favorable expectations generated by the plan soon gave way to the reality of growing monetary and fiscal imbalances. By year-end, the monthly inflation rate hovered slightly below 50%. The acceleration of inflation occurred after a drastic devaluation of the

peso in the official market accompanied by similar increases in the tariffs of state-owned public utilities and the announcement of a rescheduling of the public debt. “A more explosive cocktail could hardly be conceived. The second hyperinflation was triggered by this shock” (ibid., pp.55-56).

In response, the government appointed a new Economy Minister who announced a new stabilization plan (the “Bonex Plan”). The Bonex Plan entailed a drastic restructuring of Central Bank liabilities. It consisted of a compulsory exchange of fixed-term bank deposits, and some public securities, for a bond in dollars that yielded a fixed interest rate (called “Bonex 1989”). The Central Bank unilaterally exchanged the unavailable and special deposits of commercial banks for an equivalent amount of bonds in dollars. For their part, commercial banks also unilaterally exchanged public deposits for bonds in dollars. Thus, in January 1990 the remunerated liabilities that dislocated the behavior of the money supply abruptly disappeared from the Central Bank’s balance sheet (see Ávila, 2004.) The objective was to keep monetary aggregates under control by eliminating the quasi-fiscal deficit. It was achieved at a high cost in terms of reputation and credibility. In parallel, Congress approved a new law that established the autonomy of the Central Bank. The Bonex Plan represented a change in the stabilization strategy, as the exchange rate was allowed to float and money took the role of nominal anchor.

Notwithstanding all of these measures, in January 1990, the CPI increased 79.2%, marking the beginning of Argentina’s third hyperinflationary episode. By March, the monthly inflation reached a peak of 95.5%. The following month, an announcement of additional fiscal austerity measures managed to bring it down to 11.4%. However, by February 1991, with the WPI rising 37.9%, Argentina was again facing the threat of hyperinflation. This time the government responded with the Convertibility Plan, which led to the most drastic and sustained reduction of inflation since 1945.

If we accept the hypothesis that between early 1989 and early 1991 Argentina experienced two hyperinflationary episodes the next question is determining the months in which each one approximately started and ended. According to Almansi and Rodríguez (1989), Argentina “clearly entered” a hyperinflationary period on 6 February 1989 when the Central Bank let the peso float (during that month the price of the US dollar in the black market increased by 46.5%). De Pablo (2013) instead argued that the 1989 hyperinflation “indisputably” started on April 1989. There is less debate about when it ended: July 8, when Menem was sworn in and launched the BB Plan. As De Pablo (2013) pointed out, the hyperinflation of 1989 lasted only one quarter.

The second hyperinflation started in December 1989 with the mega devaluation of the peso and ended in March 1990. The table below shows the beginning and the end of both hyperinflationary episodes using different measures (see the Appendix for monthly data). The second hyperinflation also lasted one quarter.

Measure	Beginning	End	Length (Months)	Average monthly Δ%	Maximum Monthly Δ%	Month	Type
<i>1988-89 Hyperinflation</i>							
CPI	May-89	Jul-89	3	129.9%	196.6%	Jul-89	Hyper
WPI	Apr-89	Jul-89	4	133.8%	236.2%	Jul-89	Hyper
US\$ official FX	Feb-89	Jul-89	6	86.7%	150.0%	Jul-89	Hyper
US\$ free FX	Feb-89	Jul-89	6	90.6%	206.8%	Jun-89	Hyper
<i>1990-91 Hyperinflation</i>							
CPI	Jan-90	Mar-90	3	78.8%	79.2%	Jan-90	Hyper
WPI	Jan-90	Mar-90	3	77.3%	68.2%	Jan-90	Hyper
US\$ official FX	Dec-89	Feb-90	3	132.6%	219.3%	Feb-90	Hyper
US\$ free FX	Dec-89	Feb-90	3	62.9%	52.8%	Dec-89	Hyper

4. Conclusions

Between 1975 and 1991 Argentine experienced four episodes that can be characterized as hyperinflationary. These episodes fit into a long-term cycle that started in 1945 when Argentina embraced populism. The first phase of this cycle ended in November 1968, when the annual inflation rate fell below 10%. This stabilization phase that followed lasted seventeen months. In March 1972, when the annual inflation rate exceeded 50% for the first time since 1960, a new acceleration phase started. After three bouts extreme inflation and hyperinflation in 1976, 1985, 1989 and 1990, this phase ended on March 1991. A disinflation phase followed until the end of 2018. Since then Argentina entered a new acceleration phase.

The intensity of Argentina's hyperinflationary episodes was closely correlated to the magnitude of the structural imbalances generated by populist policies intermittently applied during this period. The ratio of consolidated government spending over GDP seems to be a good proxy for measuring such magnitude. Whenever this ratio persistently exceeded 30%, Argentina entered a new high inflation cycle. The reason is simple. First, Peronist economic policies destroyed the domestic capital market. Second, with the exception of Menem, Peronist governments have been unable to finance deficits in the international financial markets. It follows that when government spending exceeds a certain threshold the only sources of financing available to a populist government are monetization and confiscation (of domestic savings and exporter's revenues). This policy mix inevitably led to flight from money, capital flight and stagnation.

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6. Appendix A

1) Inflation measured by Consumer Price Index (CPI)

Period	Hyperinflation					Extreme Inflation
	Cagan 50% p.m.	Heymann I 4300% p.a.	Heymann II 37% p.m.	DSW 1000% p.a.	Saboín-García 500% p.a.	DSW 15% p.n.
1975-76						
Beginning			Mar-1976		Mar-1976	Jun-1975
End			Mar-1976		Jun-1976	Apr-1976
# Months	0	0	1	0	4	7
1984-85						
Beginning				May-1985	Apr-1984	Jun-1983
End				Jul-1985	Oct-1985	Jun-1985
# Months	0	0	0	3	19	16
1988-1991						
Beginning	May-1989	Dec-1989	May-1989	Jun-1989	May-1989	Apr-1988
End	Mar-1990	Jun-1990	Mar-1990	Dec-1990	Feb-1991	Feb-1991
# Months	6	7	8	19	22	18
1) 1988-1989						
Beginning	May-1989		May-1989	Jun-1989	May-1989	Apr-1988
End	Jul-1989		Jul-1989	Jul-1989	Jul-1989	Jul-1989
# Months	3	0	4	3	4	11
2) 1989- 1991						
Beginning	Jan-1990	Dec-1989	Dec-1989	Aug-1989	Aug-1989	Dec-1989
End	Mar-1990	Jun-1990	Mar-1990	Dec-1990	Feb-1991	Feb-1991
# Months	3	7	4	16	18	7

2) Inflation measured by the Wholesale Price Index (WPI)

Period	Hyperinflation					Extreme Inflation
	Cagan 50% p.m.	Heymann I 4300% p.a.	Heymann II 37% p.m.	DSW 1000% p.a.	Saboin-García 500% p.a.	DSW 15% p.n.
1975-76						
Beginning	Mar-1976		Jun-1975		Mar-1976	Jun-1975
End	Mar-1976		Mar-1976		Jun-1976	Apr-1976
# Months	1	0	2	0	4	7
1984-85						
Beginning			Jun-1985	Jun-1985	Apr-1984	Aug-1983
End			Jun-1985	Jun-1985	Oct-1985	Jun-1985
# Months	0	0	1	1	19	16
1988-1991						
Beginning	May-1989	Jul-1989	May-1989	Jun-1989	Jul-1988	Mar-1988
End	Mar-1990	Jun-1990	Feb-1991	Dec-1990	Jan-1991	Feb-1991
# Months	7	7	9	19	25	16
1) 1988- 1989						
Beginning	May-1989	Jul-1989	May-1989	Jun-1989	Jul-1988	Mar-1988
End	Jul-1989	Jul-1989	Jul-1989	Jul-1989	Jul-1989	Jun-1989
# Months	4	1	4	4	8	11
2) 1989- 1991						
Beginning	Jan-1990	Dec-1989	Dec-1989	Aug-1989	Aug-1989	Dec-1989
End	Mar-1990	Jun-1990	Feb-1991	Dec-1990	Jan-1991	Feb-1991
# Months	3	6	5	15	17	6

7. Appendix B – Monthly Data

	Monthly % increase			
1975-1976	CPI	WPI	OFX	FFX
Jan-75	2.9%	6.3%	0.0%	5.7%
Feb-75	4.6%	12.6%	0.0%	4.3%
Mar-75	8.1%	5.9%	51.3%	38.5%
Apr-75	9.7%	3.8%	0.0%	11.6%
May-75	3.9%	5.2%	0.0%	23.1%
Jun-75	21.1%	43.6%	99.3%	26.9%
Jul-75	34.7%	32.1%	18.0%	19.0%
Aug-75	22.5%	15.3%	78.0%	16.0%
Sep-75	10.8%	13.0%	5.6%	32.2%
Oct-75	13.8%	9.0%	3.4%	40.7%
Nov-75	9.0%	9.9%	9.1%	-2.1%
Dec-75	19.4%	9.4%	15.0%	-6.9%
Jan-76	8.9%	19.5%	127.4%	37.1%
Feb-76	19.0%	28.6%	22.8%	54.9%
Mar-76	37.6%	54.1%	21.1%	21.9%
Apr-76	33.9%	26.3%	-18.1%	-23.5%
May-76	12.1%	4.8%	5.0%	-3.4%
Jun-76	2.7%	4.7%	0.0%	1.7%
1984-1985				
Jan-84	12.5%	11.4%	13.1%	24.8%
Feb-84	16.9%	15.9%	10.5%	31.7%
Mar-84	20.3%	18.4%	12.6%	23.5%
Apr-84	18.5%	19.7%	14.7%	9.1%
May-84	17.1%	18.8%	17.2%	18.8%
Jun-84	17.9%	16.6%	16.5%	6.7%
Jul-84	18.3%	15.5%	20.5%	9.1%
Aug-84	22.8%	21.9%	20.5%	30.0%
Sep-84	27.5%	24.7%	23.4%	15.3%
Oct-84	19.3%	15.4%	30.8%	7.9%
Nov-84	15.0%	14.7%	23.8%	36.6%
Dec-84	19.7%	23.2%	20.2%	8.3%
Jan-85	25.1%	21.1%	25.0%	32.8%
Feb-85	20.7%	17.8%	20.0%	32.2%
Mar-85	26.5%	27.7%	27.9%	27.0%
Apr-85	29.5%	31.5%	30.8%	30.9%
May-85	25.1%	31.2%	34.2%	17.4%
Jun-85	30.5%	42.3%	33.1%	28.8%
Jul-85	6.2%	-0.9%	0.0%	18.2%
Aug-85	3.1%	1.5%	0.0%	1.0%

1988-1991

Jan-88	9.1%	12.1%	8.2%	19.3%
Feb-88	10.4%	13.4%	11.4%	6.0%
Mar-88	14.8%	16.3%	7.3%	9.5%
Apr-88	17.2%	16.8%	13.1%	9.4%
May-88	15.7%	23.3%	22.8%	12.5%
Jun-88	18.0%	24.0%	21.8%	31.4%
Jul-88	25.6%	25.0%	15.6%	18.9%
Aug-88	27.6%	31.9%	11.2%	15.9%
Sep-88	11.7%	6.4%	4.0%	1.4%
Oct-88	9.0%	4.6%	0.8%	4.4%
Nov-88	5.7%	3.9%	3.7%	3.0%
Dec-88	6.8%	5.7%	5.6%	2.3%
Jan-89	8.9%	6.9%	5.9%	6.7%
Feb-89	9.6%	8.4%	61.1%	48.0%
Mar-89	17.0%	18.9%	76.6%	61.8%
Apr-89	33.4%	58.0%	54.6%	70.7%
May-89	78.5%	104.5%	129.9%	89.7%
Jun-89	114.5%	133.5%	48.0%	217.3%
Jul-89	196.6%	209.1%	150.0%	59.0%
Aug-89	37.9%	8.5%	0.0%	2.7%
Sep-89	9.4%	2.5%	0.0%	-2.2%
Oct-89	5.6%	1.5%	0.0%	9.2%
Nov-89	6.5%	1.8%	0.0%	23.8%
Dec-89	40.1%	48.6%	174.8%	52.6%
Jan-90	79.2%	61.7%	3.9%	26.3%
Feb-90	61.6%	87.7%	219.3%	109.4%
Mar-90	95.5%	71.3%	-21.9%	35.0%
Apr-90	11.4%	7.4%	7.5%	3.4%
May-90	13.6%	7.9%	0.0%	0.9%
Jun-90	13.9%	8.3%	5.2%	6.0%
Jul-90	10.8%	3.9%	3.4%	1.9%
Aug-90	15.3%	17.2%	13.8%	13.8%
Sep-90	15.7%	9.1%	-9.4%	-5.7%
Oct-90	7.7%	2.4%	-0.8%	-3.7%
Nov-90	6.2%	1.3%	-7.9%	-5.8%
Dec-90	4.7%	-0.1%	9.0%	3.9%
Jan-91	7.7%	10.1%	68.7%	42.8%
Feb-91	27.0%	37.9%	5.9%	28.4%

Note: OFX stands for official exchange rate, FFX for free exchange rate.

Source: BCRA, INDEC, Damil and Frenkel (1990), Frenkel and Fanelli (1987) and Ávila.