

**UNIVERSIDAD DEL CEMA  
Buenos Aires  
Argentina**

Serie  
**DOCUMENTOS DE TRABAJO**

**Área: Economía y Finanzas**

**FIGHTING INFLATION IN  
ARGENTINA: A BRIEF HISTORY  
OF TEN STABILIZATION PLANS**

**Emilio Ocampo**

**Julio 2017  
Nro. 613**

**[www.cema.edu.ar/publicaciones/doc\\_trabajo.html](http://www.cema.edu.ar/publicaciones/doc_trabajo.html)  
UCEMA: Av. Córdoba 374, C1054AAP Buenos Aires, Argentina  
ISSN 1668-4575 (impreso), ISSN 1668-4583 (en línea)  
Editor: Jorge M. Streb; asistente editorial: Valeria Dowding <jae@cema.edu.ar>**



WORKING PAPER

Draft Version 30 June 2017

**Fighting Inflation in Argentina:  
A Brief History of Ten Stabilization Plans**

Emilio Ocampo

Finance Department

UCEMA/NYU Stern

**Abstract:**

This paper seeks to identify what worked and what didn't work to stop inflation in Argentina in the last seventy years. The approach is descriptive rather than theoretical and examines the relative performance of the only ten stabilization plans that, during the period 1952-2015, lasted at least 24 months. The paper also compares the performance of these plans along other dimensions, such as economic growth, unemployment and income distribution and evaluates the impact of international economic conditions. The analysis sheds light on the debates shock vs. gradualism and orthodox vs. heterodox and puts the current stabilization plan in a historical context.

**Key words:** Argentina, economic policy, inflation, stabilization plans, shock, gradualism, orthodoxy, heterodoxy.

I am grateful to Roberto Cortés Conde, José Dapena, Agustín Monteverde, Manuel Solanet, Jorge Ávila for helpful comments. The views and opinions expressed in this paper do not necessarily represent those of UCEMA or NYU.

Copyright © 2017 Emilio Ocampo. All rights reserved. Working papers are in draft form. This working paper is distributed for purposes of comment and discussion only. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

## 1. Introduction

Lenin is said to have declared that the best way to destroy the capitalist system was to debauch the currency... Lenin was certainly right. There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all the hidden forces of economic law on the side of destruction, and it does it in a manner which not one man in a million is able to diagnose.

*John Maynard Keynes, The Economic Consequences of the Peace*<sup>1</sup>

Perhaps there is no better empirical confirmation of Lenin's dictum as quoted by Keynes than Argentina. Since January 1945, the country's average annual inflation rate has exceeded 145%. There are very few other countries that can match this inflationary track record (possibly Brazil). It is important to note however, that before 1945, Argentina didn't really have an inflationary problem: between 1900 and 1944 the annual inflation rate averaged 1.5%. If we take a shorter-term perspective the picture is even worse. Data from the IMF shows that since 1980, the country's average annual inflation rate was 251%, the tenth highest in the world. It is a remarkably high figure considering that this period includes a decade during which Argentina had single digit annual inflation rates.

Looking at this data, an objective observer might conclude that Argentina doesn't know how to stop inflation. However, a closer look shows that in 13 out of 72 years since 1945 the annual inflation rate was below 10%, during eight of those years it was below the world's median inflation rate and during three consecutive years it was among the ten lowest in the world. It all happened between 1992 and 2001. So Argentina was in fact able to stop inflation. Which would lead the objective observer to conclude that Argentines either have a short memory or have a collective inability to learn from their own (and other people's) experience.

There is an ongoing debate among academics and policymakers in Argentina regarding gradualism vs. shock and heterodoxy vs. orthodoxy in fighting inflation. It is a debate with very important implications for public policy. So it is an appropriate time to examine if Argentine economic history sheds on any light on both debates.

There is an extensive literature on the history of stabilization plans in Argentina. Most papers analyze individual plans in detail and provide valuable insights. However, in general they have a limited historical scope and do not attempt to compare the performance of the myriad different plans that were implemented over the last seventy years. This paper compares the evolution of the inflation rate under the ten stabilization plans that during the period 1945-2015 lasted at least 24 months. It was written from the perspective of an economic historian and not a macroeconomist. Therefore the approach is descriptive rather than theoretical. It was written in the spirit of Sargent (1982): "to examine the measures that successfully brought drastic inflations under control". The paper not only analyzes the relative effectiveness of each of the chosen stabilization plans in reducing the inflation rate but also addresses

---

<sup>1</sup> Keynes, John Maynard (1919) *The Economic Consequences of the Peace* (London: Macmillan), p.220. On the attribution of Keynes' quote see White and Schuler (2009).

two important questions: a) what impact it had on economic growth, real wages, unemployment, income distribution, real exchange rates and the current account and b) to what extent the global financing and economic environment affected its performance. By adding a broad historical perspective, the paper attempts to complement the vast existing literature on the subject, which tends to focus more on theoretical issues and/or specific stabilization plans. However, the methodology used here has obvious limitations, as it cannot untangle the leads and lags in the evolution of certain macroeconomic variables rendering, in some instances, any inferences about causality necessarily tentative. The main conclusions however are robust.

The paucity and poor quality of national economic statistics poses a problem for any student of Argentine economic history. Thirty years ago the authors of a seminal paper on Argentina's inflation complained that reliable public data on fiscal deficits and public spending "covering an extended period of time in a comparable fashion are simply unavailable" (Dornbusch and De Pablo, 1988). The problem has only gotten worse. Despite this limitation, the paper attempts to draw meaningful conclusions from the comparison of successful and unsuccessful stabilization plans. These conclusions shed some light on the shock vs. gradualism and the orthodox vs. heterodox debates. The analysis presented also puts into perspective the stabilization plan put in place by the Macri administration.

The conclusions from the analysis presented here can be summarized as follows: i) gradualism didn't work, ii) successful plans always included significant monetary restraint and fiscal adjustment (not only higher tax revenues but also lower public spending and a reduction in the public payroll), iii) wage and price controls are not necessary nor sufficient to reduce inflation, iv) orthodox plans had a higher success ratio than hybrid or heterodox ones, v) over time successful and orthodox plans delivered significantly higher growth in GDP and real wages, and, vi) when it comes to the external environment, low US interest rates (nominal and real) did not seem to have had much impact but favorable terms of trade did.

## **2. A brief history of inflation in Argentina**

When it comes to inflation, Argentina is a perfect laboratory that can deliver all types: big, medium and small, creeping and explosive, chronic and acute. What is a big inflation? The standard measure (Cagan, 1956) is a monthly increase in the consumer price level in excess of 50%. Since January 1945, Argentina came close to hyperinflation on two occasions (July 1975 and March 1976) and experienced it fully on another two (mid 1989 and early 1990). Argentina is also a typical case of chronic inflation, defined as "a condition in which price increases of more than 20% per annum" over an extended period of time, and of acute inflation, which is characterized by "rapid bursts of inflation" (Harberger, 1978).

The country holds several world records in inflation. According to data compiled by the World Bank, during the period 1960-2016 it had the 10<sup>th</sup> highest annual inflation rate in the world: 177% (see Table 1). In the 21<sup>st</sup> century, so far it ranks seventh. And according to the IMF, in 2016 only two countries had an inflation rate higher than Argentina: South Sudan and Venezuela. Both come close to the definition of failed states. If we exclude the hyperinflationary months (six in total), the annualized average monthly inflation rate in Argentina for the period January 1960-April 2017

was 66%, a level that for most countries would be considered extremely high and dangerous.

In the last seventy years, there was only a short period during which Argentina had an inflation rate below the world's median: between 1994 and 2001, under the Convertibility regime. In fact in 1996 and 1997 it was among the ten countries with the lowest inflation rate in the world!

The table below puts Argentina's inflationary history since 1960 within a global and regional context. The first column includes the entire period, the second includes the sixties and seventies when inflation accelerated throughout most of Latin America, the third includes the decade during which hyperinflation flared up in Argentina and some of its neighbors (most notably Brazil and Bolivia), the fourth covers the period since the return of democracy, and finally, the last column covers the 21<sup>st</sup> century.

**Table 1. Argentina's Inflation in a Global and Regional Context**

	<b>1960- 2016</b>	<b>1960- 1980</b>	<b>1981- 1991</b>	<b>1984- 2016</b>	<b>2000- 2016</b>
Argentina	176.6%	79.0%	731.1%	236.3%	19.1%
World					
Average	33.8%	12.3%	64.6%	41.7%	16.8%
Median	7.5%	8.0%	8.9%	6.9%	4.1%
90 <sup>th</sup> Percentile	48.3%	19.6%	67.0%	55.0%	13.4%
<u>Position in Global Inflation Ranking (178 countries)</u>					
Argentina	10	3	4	9	7
Bolivia	6	21	2	5	79
Brazil	8	5	5	7	56
Chile	21	2	34	78	106
Colombia	51	17	31	52	77
Mexico	39	39	16	34	85
Peru	7	11	3	6	111
Uruguay	22	4	15	28	39
Venezuela	35	104	30	25	6

Source: World Bank

We can draw several conclusions from this table: a) in relation to the rest of the world, Argentina's inflation rates have remained stubbornly high, putting the country in a group of statistical outliers that today also includes Angola, South Sudan, Congo, Venezuela and until very recently Zimbabwe, b) many Latin American countries that at some point belonged to this infamous group –like Brazil, Chile, Peru and Uruguay– left it decades ago and now have moderate and stable inflation rates (in fact, the only two Latin American countries that so far in this century remain in the infamous top ten are Argentina and Venezuela, the regional champions of populism) and c) since the beginning of the 21<sup>st</sup> century median inflation rates around have fallen significantly around the world but not in Argentina.

As the following table shows, Argentina is the only country that has consistently ranked among the ten countries with the highest inflation rate in the world. The only

continuous period of time when this was not true was between 1992 and 2001. In fact, since 1960, Argentina is the country that most frequently had one of the ten highest inflation rates in the world: 40 out of 57 years.

**Table 2. The Ten Countries with the Highest Inflation Rate**

Rank	1960	1970	1980	1990	2000	2016
1	Indonesia	Chile	Israel	Nicaragua	Congo	South Sudan
2	Uruguay	Brazil	Turkey	Peru	Angola	Suriname
3	<b>Argentina</b>	Uruguay	<b>Argentina</b>	Brazil	Belarus	Angola
4	Brazil	South Korea	Brazil	<b>Argentina</b>	Ecuador	<b>Argentina</b>
5	Chile	Nepal	Uruguay	Poland	Serbia	Mozambique
6	Bolivia	Jamaica	Peru	Uruguay	Suriname	Ghana
7	Iran	Philippines	Iceland	Sierra Leone	Zimbabwe	Nigeria
8	Peru	Nigeria	Ghana	Zambia	Turkey	Ukraine
9	Paraguay	<b>Argentina</b>	Bolivia	Congo	Romania	Haiti
10	Burkina Faso	St. Lucia	Congo	Sudan	Moldova	Egypt

Source: World Bank

Despite this evidence, the old debate between monetarism and structuralism, although no longer relevant in the rest of the world, remains alive in Argentina (see Rapoport, 2011). It is not innocuous, as the structuralist explanation (which denies that the cause of inflation is the expansion of the money supply) still exerts considerable influence over an important segment of the country's political leadership, which obviously doesn't bode well for reducing the inflation rate to the world's median level. The evidence shown in the table above refutes the structuralist theory, unless it were only applicable to Argentina, which doesn't make any sense. Argentina's neighbors (and other past members of the infamous top ten) reduced inflation by applying fiscal austerity and monetary restraint.

On the other hand, Friedman's *dictum* that "inflation is always and everywhere a monetary phenomenon" (Friedman, 1963) is not very helpful to understand the root cause of Argentina's inflationary problem. Inflation is a monetary phenomenon in the same way a flood is an excess of water. The history of inflation in Argentina is associated to the growth of public spending and increased state intervention, which in turn led to recurrent fiscal deficits financed that were financed with money creation (Fernández, 1984). Since 1946, Argentina had a fiscal surplus (including interest on public debt) in only seven years, six of them during the commodity price boom of the 21<sup>st</sup> century (which led to a massive increase in tax revenues). These recurrent and persistent fiscal imbalances reflect a pervasive inability (or unwillingness) of Argentine society to live within the constraints imposed by economic reality.

Populism, in a variety of electoral packages, has been the "enabler" of this fantasy, promising prosperity and equality without ever tackling structural barriers to both. As a result it could never deliver on its promises. Instead, Argentina got low growth, high inflation plus increasing inequality and poverty rates. Based on World Bank figures, from 1960 until 2015, a period for which comparable cross-country data is available, Argentina's annual inflation rate exceeded the world average in absolute terms by 143 percentage points and its annual GDP growth rate lagged the world average by 1.4 percentage points.

It is not a mere coincidence that the onset of inflation coincided exactly with the onset of populism. It is also not a coincidence that Argentina is the only country in the world that, since 1946, has consistently and recurrently applied populist economic policies despite their dismal results. Populism is the only “structural” cause of inflation in Argentina.<sup>2</sup> Therefore, bringing down the former in a sustainable manner requires eradicating the latter.

Accepting this premise leads to an inevitable conclusion: the analysis of the inflationary problem in Argentina belongs more in the realm of political economy and political science than of macroeconomic theory. This doesn’t mean that the latter cannot provide any insights. It does: there can be no stabilization without monetary control, which in turn requires budget balancing (Dornbusch, Sturzenegger and Wolf, 1990). But it is not simply a question of deficits but also high levels of government spending, which in Argentina are significantly higher than in other comparable emerging market economies. This is in turn one of the main reasons behind Argentina’s poor track record in economic growth.

The persistence of inflation reflects the persistence of populism, which has led to higher public spending and greater government interference in economic decisions. In essence, populism denies the existence of the basic economic problem facing any society: how to satisfy unlimited needs with scarce resources. In the populist mentality economic constraints are not real (or at least not binding) and the distribution of income that results from the operation of market forces is unfair and therefore not acceptable. There is vast literature on the economics of populism (see Dornbusch and Edwards, 1990 and 1991). The puzzle economists and political scientists have tried to explain is why populism remains so popular given its dismal results. Some explanations posit that it is a predictable outcome within a rational-agent model (see for example Fernández, 2017).

Elsewhere I have proposed an alternative explanation (Ocampo, 2015a and 2015b). One of its key elements is what I call “the frustration gap”, which arises when there is widening divergence between the economic expectations of the majority of the electorate (i.e., the middle class) and reality. This typically happens when after a period of rapid growth an economy hits structural roadblocks that require costly reforms (as it happened in Argentina during the 1930s or currently in the United States). Inflation is the first step in a process of denying the existence of the underlying problem: for a short while it hides the costs of, and/or the need for, structural reform. Over time, populism only worsens the problem.

Populism and inflation feed negatively on each other generating a vicious cycle that is difficult to break. By hampering long-term investment and slowing economic growth, inflation contributes to the frustration gap that engenders populism. Therefore eradicating populism requires bringing down inflation. Which brings us back again to the domain of macroeconomic theory, which rightly points out the measures to reduce inflation: reduce government spending and fiscal deficits. To the extent this reduction is sustainable over time, and is accompanied by structural reform, it can lead to the

---

<sup>2</sup> Although it is true that between 1953 and 1954 the inflation rate was reduced to single digits, it was done primarily through very strict wage and price controls that led a severe distortion in relative prices. Despite these measures, by 1955 the annual inflation rate was averaging 15%. The aftermath of this stabilization plan was very traumatic for the Argentine economy.



eradication of populism. Which in turn brings us back to politics and political economy.

### **3. A brief history of stabilization plans in Argentina**

Behind the country's long-term failure in fighting inflation we can find a few short and medium term successes. In this respect, the country has been a macroeconomic laboratory. Almost any economic and financial measure that could bring down inflation has been tried: from strict control of the money supply and fiscal adjustment to wage and price controls and radical currency and monetary reform. In recent years, the government attempted a novel approach to reduce inflation: tampering with the CPI index. According to private estimates, between January 2007 and November 2015 the annual inflation rate averaged 24.3%, whereas according to the INDEC it only averaged 11.5%. A perverse logic followed: if there was no inflation, there was obviously no need for a stabilization plan. To make matters worse, the distortion of economic statistics also helped the Kirchner government to show higher economic growth and lower poverty rates.

Since January 1945, Argentina had 61 economy ministers (an average tenure of slightly over 14 months). In most cases, at the time of their appointment most faced double-digit inflation rates. However, not all of them attempted to implement a coherent, well-designed stabilization program. In some cases this was simply because they didn't last enough time in their position, in others, because they didn't have a program. As an example of the former, Federico Pinedo in 1962 only lasted a few weeks as Minister of Economy after announcing his plan while Celestino Rodrigo in 1975 only two months.

In Argentina, as well as in some other developing countries during the seventies and eighties, more often than not stabilization plans were short-lived and inflation reemerged with a vengeance (Vegh, 1981). Since 1952, only ten stabilization plans lasted 24 months or more. When it comes to reducing inflation, half of them were successful and the other half unsuccessful.

In one important sense however, all stabilization plans in Argentina failed, since almost 70 years after inflation emerged, the country still lives with an inflation rate that is among the highest in the world.

By any measure, the Convertibility Plan launched in 1991 was unquestionably the most successful stabilization plan ever implemented in Argentina. It not only reduced inflation to its lowest level in seventy years for a relatively long period of time (almost eight years), but also involved structural reforms that led to rapid economic growth. For a while it seemed that Argentina would be able to rid itself of inflation and populism. But a combination of internal and external factors triggered a massive economic crisis at the end of 2001 and the pendulum swung violently in the opposite direction bringing back populism and inflation.

In the short and medium term, political and economic factors explain why efforts to bring inflation failed. In some cases these factors operated independently, in others simultaneously, feeding on each other. Political factors limited the ability of governments to impose the economic measures required by their announced stabilization plans. This was due to military coups (Frondizi in 1962) or electoral setbacks (Alfonsín in 1987). In the medium term, politics dominated economics.

“Reform fatigue” has been a recurrent phenomenon. Interestingly, only one of the five successful stabilization plans was implemented under a military regime.

Economic factors reflected growing inconsistencies in the stabilization plan. Usually, efforts to control, or fix, domestic prices and/or the exchange rate in the face of growing internal and external pressures eventually led to a capitulation. A classic example of the first was Gelbard in 1975, and of the second, Martínez de Hoz in 1981. By not addressing the underlying economic causes that fed inflation, unsuccessful plans ended up exacerbating the problem.

The impact of changes in international economic and financial conditions was significant. In some cases, when favorable, such as times of commodity price booms, they allowed economically inconsistent plans to last longer (e.g., Gelbard) whereas in others, such as when the Fed hiked US interest rates or when volatility increased dramatically in developed markets, accelerated their demise (e.g., Martínez de Hoz’ *tablita* in the first case and the Convertibility regime in the second).

Beyond politics and the external environment, in the medium term, why did some plans succeed and others fail? To answer this question I compare five successful stabilization plans with five unsuccessful ones.

#### **4. Methodology**

The period under study covers from May 1952 until November 2015, which yields 763 observations of monthly, accumulated annual and projected annual inflation rates. The main source for this data is the national statistical office (INDEC) complemented with data provided by the Billion Prices Project due to the unreliability of official estimates after January 2007. I use annual data for macroeconomic variables, as reliable quarterly data is not available. Using this frequency presents obvious limitations given the leads and lags that affect these variables.

For each stabilization plan I compare the first year through the last. In some cases, the basic elements of a stabilization plan survived the resignation of the Economy Minister that announced it.<sup>3</sup> If a plan was launched or announced before June 30 I take that year as its first year, otherwise I use the following year. I used the same criteria to determine a plan’s last year. In several cases I assume the plan continued even if the Economy Minister changed. The five successful plans lasted on average 3.7 years whereas unsuccessful ones only 3.1 years.<sup>4</sup>

The paper focuses on the ten stabilization plans that lasted at least two years. Some of these plans are associated with a single economy minister (e.g., Martínez de Hoz and Cavallo). In other cases they were implemented by several ministers but under the same president (e.g., Donato del Carril, Alsogaray and Alemann under Frondizi and Krieger Vasena and Dagnino Pastore under Onganía). Finally, in three instances the author of the plan was not the economy minister mainly responsible for implementing it (Gómez Morales for Bonanni, Raul Prebisch for Blanco and the staff of the IMF for

---

<sup>3</sup> In December 1958, Emilio Donato del Carril announced the stabilization plan that six months later was implemented by Alvaro Alsogaray and, then following his resignation, by Roberto Alemann.

<sup>4</sup> The Convertibility regime lasted 10 years, an historical record for a stabilization plan, but for the purpose of this study we only consider the period under Cavallo.

Donato del Carril and then Alsogaray).<sup>5</sup> Gelbard resigned after 17 months but for the purpose of the analysis I define his plan as lasting until September 1975, which adds another full year to the comparison. His immediate successor, Gómez Morales, who lasted only three months, didn't seriously attempt to correct any of the economy's accumulated imbalances (see Sturzenegger, 1990).

The table below summarizes key chronological data for each of the ten stabilization plans:

**Table 1. Ten Stabilization Plans (1952-2015)**

<b>President</b>	<b>Minister/s</b>	<b>Beginning</b>	<b>End</b>	<b>First year</b>	<b>Last year</b>	<b>Duration in years</b>
Perón	Bonanni	May-1952	Sep-1955	1952	1955	3.3
Aramburu	Blanco Verrier Krieger Vasena	Nov-1955	Apr-1958	1956	1957	2.4
Frondizi	Alsogaray Alemann	Jul-1959	Dec-1961	1959	1961	2.5
Onganía	Krieger Vasena Dagnino Pastore	Jan-1967	Jun-1970	1967	1970	3.4
Campora/Perón	Gelbard Gómez Morales Rodrigo	Jun-1973	Sep-1975	1973	1975	2.3
Videla	Martínez de Hoz	Apr-1976	Mar-1981	1976	1980	4.9
Alfonsín	Sourrouille	Mar-1985	Mar-1989	1985	1988	4.0
Menem	Cavallo	Feb-1991	Jul-1996	1991	1996	5.4
Duhalde/Kirchner	Lavagna	May-2002	Nov-2005	2002	2005	3.5
Fernández	Kicillof	Dec-2013	Dec-2015	2014	2015	2.0

For each stabilization plan I compare the evolution of the inflation rate and certain macroeconomic variables over a period of up to 4 years (although not all plans reached their fourth anniversary).

1. Money supply
2. Fiscal Deficit
3. Public Spending
4. Public Indebtedness
5. Current Account
6. Real Exchange Rate
7. Real GDP growth
8. Real wages and income distribution
9. Unemployment

---

<sup>5</sup> Gomez Morales was president of the Central Bank and therefore had responsibility for implementing the monetary measures associated with his stabilization plan.

The first four variables are measures that can be used to reduce the inflation rate; the other six, a derivative result of the stabilization plan. The source for most of the data is Ferreres (2010), complemented with figures compiled by the INDEC, BCRA, the World Bank and the IMF. Unemployment data is only available after 1961, so the comparison is incomplete.

To ascertain to what extent the external environment affected the results of a specific stabilization plan I also compared the evolution of each of the following variables during the period it lasted:

1. Terms of trade
2. US long term interest rates (nominal and real)
3. International agricultural commodity prices

How to measure success? I use the following criteria: a stabilization plan was successful if it reduced the annual accumulated inflation rate to 15% or less on month 24 (or the average of months 23-25) and remained at that level on average for the period starting on month 13<sup>th</sup> and ending on month 48<sup>th</sup> (or the month in which the plan ended, if earlier). This is not an entirely arbitrary threshold. The data shows that if a stabilization plan didn't reduce the annual inflation rate below 15% within a 24-month period, it never did.

This criteria leaves us with five successful plans: Gómez Morales (1952), Alsogaray (1959), Krieger Vasena (1967), Cavallo (1991) and Lavagna (2002). I include the first with three caveats: a) he was the president of the Central Bank and not the Economy Minister, b) although it is clear when the plan started it is not so clear how long it actually lasted, c) the plan imposed strict wage and price controls under a politically repressive regime that created severe distortions in relative prices that had to be corrected in its aftermath. With regards to Alsogaray's plan, it was designed by the staff of the IMF and announced six months earlier by his predecessor, Donato del Carril and it ended on its third anniversary due to a *coup d'état*. During its last month, the annual inflation rate was 16.4%. Finally, it can be argued that Lavagna's main priority, at least initially, was not reducing inflation but bringing the economy out of a deep recession. It is important to note that the definition of success proposed here has a temporal limitation. Besides, it doesn't take into account the consequences of repressed inflation and the distortion in relative prices. This is particularly important for those stabilization plans that resorted to wage and price controls, such as Gomez Morales, Krieger Vasena and Lavagna.

**Table 2. Annual Inflation Rate under Five Successful Stabilization Plans**

<b>Period</b>	<b>G. Morales (1952)</b>	<b>Alsogaray (1959)</b>	<b>K. Vasena (1967)</b>	<b>Cavallo (1991)</b>	<b>Lavagna (2002)</b>
Avg. prior 3 months	54.2%	50.7%	29.9%	767.8%	18.4%
<u>1st Condition</u>					
Month 24	-0.3%	18.5%	9.6%	15.0%	3.1%
Avg. Months 23-25	-1.9%	12.8%	8.8%	15.3%	3.2%
<u>2nd Condition</u>					
Avg. Months 25-48 (Last)	10.2%	11.0%	10.5%	7.0%	8.5%

Notes: 1) as of December 1961, thirty months after being launched.

I compare these five successful stabilization plans with five unsuccessful ones. The main criteria for choosing the latter is that they lasted at least 24 months (several unsuccessful plans failed to reach their first anniversary) to allow for a meaningful comparison with their most successful counterparts.<sup>6</sup> That leaves us with Blanco-Prebisch (1952), Gelbard (1973), Martínez de Hoz (1976), Sourrouille (1985) and Kicillof (2013).<sup>7</sup> Two out of five unsuccessful plans two were implemented under a military regime and the other three under democratic ones. The table below shows the evolution of the annual inflation rate for each of the unsuccessful plans three months prior to launch and after 12, 24, 36 and 48 months:

**Table 3. Annual Inflation Rate under Five Unsuccessful Stabilization Plans**

<b>Period</b>	<b>Blanco (1955)</b>	<b>Gelbard (1973)</b>	<b>M. de Hoz (1976)</b>	<b>Sourrouille (1985)</b>	<b>Kicilloff (2013)</b>
Avg. prior 3 months	12.3%	79.1%	566.3%	804.3%	24.3%
<u>1st Condition</u>					
Month 24	29.8%	80.5%	172.9%	98.8%	27.9%
Avg. Months 23-25	30.3%	90.2%	175.7%	98.2%	28.8%
<u>2nd Condition</u>					
Avg. Months 25-48 (Last)	25.1%	362.8%	162.9%	247.2%	34.2%

Notes: (1) as of its last month.

## 5. Successful versus Unsuccessful Stabilization Plans

As explained in the previous section, the main criteria to determine if a stabilization plan was successful is whether it achieved the objective of reducing inflation over a relatively short period of time (two years) in a sustainable manner (for at least another year or until its termination for whatever reason). In most cases reducing inflation was an explicit objective of the stabilization plan but not the only one. Even under military regimes, this objective was to be achieved, supposedly, without reducing real wages or increasing the unemployment rate.

The following table sets out the average accumulated annual inflation rate for the ten successful and unsuccessful stabilization plans in their first 24 months (Appendix II includes the same data relative to the starting level of inflation). For comparison purposes I have also included the averages excluding the first and last stabilization plan, i.e., Gómez Morales and Kicillof (Appendix A includes individual data for each plan).

**Table 4. Comparison of Average Accumulated Annual Inflation Rate**

<b>Period</b>	<b>Successful 4</b>	<b>Successful 5</b>	<b>Failures 5</b>	<b>Failures 4</b>
Month 12	35%	29%	104%	120%

<sup>6</sup> Pugliese under president Illia is a close call as it lasted 22 months. It was clearly unsuccessful.

<sup>7</sup> I include Kicillof's even though it can be argued that he didn't really have a stabilization plan, partly because his government tampered with the consumer price index and therefore never actually recognized inflation as a problem.

Months 13-36	12%	10%	110%	130%
Months 13-48	11%	10%	94%	110%

Notes: Average includes data for all stabilization plans.

### *Money Supply*

As expected, when it comes to monetary restraint, the difference between successful and unsuccessful stabilization plans is striking. Over time the latter exhibited a total lack of control over the growth of money supply.

Time	Annual $\Delta\%$ in High-powered Money		Real Money Balances (HPM/CPI, 100 at t=0)	
	Successful	Unsuccessful	Successful	Unsuccessful
t=0	223.0%	149.3%	100	100
t=1	70.7%	181.6%	102	100
t=2	32.1%	78.0%	167	116
t=3	13.1%	141.4%	189	105
t=4	12.4%	251.4%	229	60

### *Fiscal Deficit*

One of the most striking differences between successful and unsuccessful plans has to do with fiscal adjustment. The former very rapidly reduced the deficit and moved into a surplus whereas the latter never managed to reach fiscal equilibrium and, in fact, after a few years still showed a significant imbalance. However, unsuccessful plans started from a significantly worse position. Interestingly, in absolute terms, the fiscal adjustment achieved by the second anniversary was almost the same (approximately 2% of GDP) for both types of plans. However, unsuccessful plans never managed to go beyond that initial adjustment.

Time	Primary Fiscal Deficit as % of GDP		Relative to t=0 <sup>1</sup>	
	Successful	Unsuccessful	Successful	Unsuccessful
t=0	3.4%	6.3%	100%	100%
t=1	1.5%	4.8%	43%	76%
t=2	0.1%	3.7%	2%	60%
t=3	0.1%	3.9%	4%	63%
t=4	0.2%	4.5%	5%	72%

Note: (1) using the average for each period for each type of stabilization plan.

### *Public spending*

Successful stabilization plans achieved a fiscal balance by reducing public spending (including the public payroll) and raising taxes. Unsuccessful ones instead increased spending and relied on tax increases to reduce the deficit. However, by the end of 4 years they had not achieved any significant reduction of government spending in relation to GDP. In fact, under unsuccessful plans, on average, after four years the total number of public employees remained at a level quite similar to that prevailing at their outset.

Time	Government Spending as % of GDP		Relative to t=0	
	Successful	Unsuccessful	Successful	Unsuccessful
t=0	29.5%	31.5%	100%	100%
t=1	27.7%	33.1%	94%	105%
t=2	26.7%	32.0%	90%	102%
t=3	26.7%	31.2%	91%	99%
t=4	28.0%	31.1%	95%	99%

Note: Data on government spending does not include the net financial result of public enterprises.

### *Public Debt*

The evolution of public indebtedness is the only dimension in which the conventional wisdom is to some extent supported by the facts. On average, public debt grew more under successful stabilization plans than under unsuccessful plan, which would seem to be in contradiction to the path followed by the fiscal deficits.

The reason behind these results, is that the average for the successful plans includes the period 2002-2005, when the ratio exploded in relation to 2001 due to the mega devaluation of the peso and the sharp GDP contraction. Excluding this and Gomez Morales' plan, after four years successful plans ended with practically the same level of public debt in relation to GDP as in the year previous to their launch.

On the other hand, the average for the unsuccessful plans includes the figures for Martinez de Hoz' plan. By 1980 the ratio of public debt to GDP was 12.4% (vs. 33.8% in 1975) but by the end of 1981 it had more than doubled to 26.1% due to the impact of the sharp devaluation of the peso. If we exclude Martinez de Hoz from the sample, unsuccessful plans ended with a higher level of debt to GDP than successful ones.

Time	Debt/GDP Relative to t=0	
	Successful	Unsuccessful
t=0	100.0%	100.0%
t=1	124.8%	90.2%
t=2	115.9%	91.5%
t=3	121.4%	114.2%
t=4	121.1%	74.6%

### *Current Account*

The external sector was the Achilles heel for most stabilization plans implemented in Argentina in the last seventy years. Both successful and unsuccessful plans started with a current account deficit that they managed to reduce significantly after one year (almost in the same absolute percentage in relation to the GDP). This improvement

was not sustained and the current account deteriorated rapidly. As in the case of the fiscal imbalance, unsuccessful plans started from a worse position and in the first year achieved a similar adjustment in the external sector. The picture improves slightly for successful plans if we exclude Gómez Morales.

Time	Current Account as % of GDP	
	Successful	Unsuccessful
t=0	-1.5%	-2.4%
t=1	0.1%	-0.3%
t=2	1.4%	-1.4%
t=3	-1.0%	-1.3%
t=4	-1.5%	-0.9%

### *International Reserves*

When it comes to international reserves, the averages give a distorted picture: they grow more under unsuccessful plans. However, if we exclude Martínez de Hoz, the evolution of reserves conforms to what one would expect.

Time	International Reserves (100% at t=0)		
	Successful	Unsuccessful	Unsuccessful <sup>(1)</sup>
t=0	100%	100%	100%
t=1	167%	179%	160%
t=2	238%	237%	164%
t=3	212%	277%	102%

Notes: Excluding Martínez de Hoz.

### *Real exchange rate*

On average, successful stabilization plans were able to deliver an immediate real depreciation of the peso that helped increase export revenues and improve the external balance (the exception were Alsogaray and Cavallo). However, over time, this depreciation eroded. The unsuccessful plans instead showed a marked real appreciation of the peso over time, which may explain the deterioration of the current account seen in a previous table.

Time	Real Exchange Rate Index	
	Successful	Unsuccessful
t=0	100	100
t=1	115	94
t=2	99	85
t=3	98	95
t=4	106	64

### *Real GDP growth*

As expected, successful stabilization plans started with an output contraction: on average GDP declined almost 1% in the first year (the exception was Cavallo).



However, contrary to conventional wisdom, over time they delivered significantly higher real economic growth.

Time	Annual GDP growth rate		GDP=100 at t=0	
	Successful	Unsuccessful	Successful	Unsuccessful
t=0	0.8%	2.5%	100	100
t=1	-1.7%	0.7%	98	101
t=2	7.1%	2.9%	105	104
t=3	7.0%	5.3%	113	109
t=4	5.0%	-1.8%	121	107

### *Real wages*

Also, contrary to conventional wisdom, over time successful stabilization plans led to an increase in real wages while unsuccessful ones achieved the opposite effect. In the case of the latter, this result is simply a consequence of the effects of renewed inflation when a stabilization plan fails.

Time	$\Delta\%$ in Real Wages		Relative to t=0	
	Successful	Unsuccessful	Successful	Unsuccessful
t=0	2.6%	1.8%	100	100
t=1	-10.6%	-8.4%	89	91
t=2	2.3%	3.1%	91	95
t=3	8.8%	-1.7%	99	94
t=4	3.5%	3.8%	105	73

### *Income Distribution*

Contrary to conventional wisdom, the evolution of income distribution, as measured by the proportion of wages and salaries in GDP, was significantly more beneficial to workers under successful stabilization plans.<sup>8</sup> This is probably explained by the fact that in the aftermath of unsuccessful stabilization plans, inflation resurfaced with a vengeance while nominal salaries lagged.

Time	Wages and Salaries as % of GDP (In relation to t=0)	
	Successful	Unsuccessful
t=0	100.0	100.0
t=1	95.5	91.4
t=2	94.5	92.9
t=3	97.8	93.9
t=4	99.2	78.4

<sup>8</sup> The only exception was Gelbard's plan in its first two years during which the participation of wages and salaries in GDP increased from 39% to 46.7%.

## *Unemployment*

Unemployment figures are only available after 1961 so in this case the comparison is incomplete. To start with, on average, the levels of unemployment that unsuccessful plans had to deal with were significantly higher than those of successful plans. On absolute terms, the unemployment rate under successful plans was almost half of the unsuccessful plans. In absolute terms, successful plans reduced the unemployment rate by 1.1% after four years whereas unsuccessful plans increased it by 0.7%.

However, in relative terms, in their first year, the unemployment rate under successful plans had risen significantly in relation to unsuccessful ones (mostly due to the impact of Krieger Vasena's plan). By the second year, the performance was similar. However after four years, in relative terms, unsuccessful plans had reduced the unemployment rate by a greater percentage.

Time	Unemployment Rate		Unemployment Rate 100 at t=0	
	Successful	Unsuccessful	Successful	Unsuccessful
t=0	5.3%	8.8%	100	100
t=1	5.1%	7.9%	103	90
t=2	4.5%	7.4%	88	84
t=3	4.0%	7.8%	81	72
t=4	4.2%	9.5%	88	79

Note: No data available for Gómez Morales, Blanco and Alsogaray.

## *The International Economic and Financial Environment*

When it comes to analyzing the effect of the international environment on domestic macroeconomic performance it is important to remember that Argentina has traditionally been a net exporter of agricultural commodities and a net importer of capital (both portfolio and FDI). Therefore two variables are key to the analysis: international commodity prices and interest rates (Ocampo, 2016). In recent years, at least until mid 2012, both have generated a strong tail wind (lower interest rates have been accompanied by higher commodity prices). If we compare their evolution for eight stabilization plans (Gómez Morales and Sourrouille are excluded) the picture is mixed.

Once again, conventional wisdom is refuted by the facts. When it comes to nominal agricultural commodity prices, successful plans were not as "lucky" as unsuccessful ones, at least in their first three years. However when import prices are taken into consideration the picture changes: terms of trade were on average significantly higher and more stable for successful plans (the exception was Gomez Morales). In this respect, unsuccessful plans seem to have been "unluckier" than successful ones. A favorable evolution in the terms of trade seems was not a necessary but a sufficient condition for success.

Time	Agricultural Commodity Prices		Terms of Trade	
	Successful	Unsuccessful	Successful	Unsuccessful
t=0	100	100	100	100
t=1	99	106	101	96
t=2	99	111	100	90
t=3	101	117	103	85
t=4	101	97	95	87
<i>Average</i>	<i>100</i>	<i>108</i>	<i>100</i>	<i>89</i>

On the other hand, unsuccessful plans faced a more favorable financing environment with relatively low and declining real interest rates. This slight advantage, almost 100 basis points on average, disappears, in fact turns into a disadvantage, when we consider nominal interest rates: on average unsuccessful plans faced higher and increasing nominal interest rates.

Time	Nominal Long Term US Interest Rates		Real Long Term US Interest Rates	
	Successful	Unsuccessful	Successful	Unsuccessful
t=1	5.5%	6.2%	3.0%	2.3%
t=2	5.2%	5.7%	2.4%	1.1%
t=3	5.2%	7.0%	2.1%	1.2%
t=4	6.2%	9.1%	2.2%	1.5%
<i>Average</i>	<i>5.5%</i>	<i>7.0%</i>	<i>2.4%</i>	<i>1.5%</i>

Although a strong tail wind helped, it was not enough to compensate for macroeconomic mismanagement. In some instances, stabilization plans succeeded despite lower terms of trade (e.g., Gomez Morales and Krieger Vasena) and in others even in the face of steadily higher real interest rates (e.g., Cavallo). However, all unsuccessful plans faced declining terms of trade.

## 6. Gradualism vs. Shock

“There is no gradual stopping of an inflation [sic]. It is like gradually getting rid of a smoking habit or gradually getting rid of a drug addiction... Maybe it is possible for some countries to stop inflation gradually, but maybe you have to be Swiss to make it work,” wrote Fritz Machlup, who had witnessed first hand the Austrian hyperinflation of the 1920s.<sup>9</sup>

What is gradual? When it comes to reducing inflation, there is no precise definition. It is usually accepted that the hyperinflations in Austria, Hungary, Germany and Poland, were “stopped abruptly rather than gradually” (Sargent, 1982). The table below shows what this means:

<sup>9</sup> Machlup, Fritz A., 1983. “The Political Economy of Inflation”, *Cato Journal*, Vol. 3, No. 1 (Spring 1983), p.17.

**Table 5. The End of Four Big Inflations**

	<b>Austria</b>	<b>Germany</b>	<b>Hungary</b>	<b>Poland</b>
Accumulated annual inflation first 12 months	14.0%	4.3%	2.0%	12.1%

Notes: For Germany it is an estimate based on the first eleven months. Source: Sargent (1982).

Fifty years ago, in his seminal study of Argentina’s economic history, Carlos Diaz Alejandro argued that it was “highly unlikely that a coordinated stabilization plan could stop price increases overnight”. In his opinion, trying to do so would generate significant output losses. “It is more feasible that a gradual and coordinated program could avoid recession if at the same time reduces an increase in prices over a period, let’s say two to three years.”<sup>10</sup>

Given that there is no simple objective standard to distinguish between gradualism and shock, I have adopted two years as the threshold: a gradual stabilization plan takes longer than two years to reduce the annual inflation rate below 15%. Note that this definition gradualism does not preclude success. The latter requires not only that the annual inflation rate is reduced below 15%, on average, from its 13<sup>th</sup> month till the earliest of a) the 48<sup>th</sup> month, or b) its termination.

The evidence of the ten stabilization plans analyzed in this paper shows that reducing the annual inflation rate below 15% in 12 months was a necessary but not sufficient condition for success, but reducing it to that level within 24 months was a necessary condition for success.

<b>Time period</b>	<b>Monthly Inflation Rate</b>	
	<b>Successful</b>	<b>Unsuccessful</b>
Average previous 3 months	5.8%	9.1%
After 12 months	1.2%	3.1%
18 months	1.0%	4.8%
24 months	1.4%	6.3%
36 months	1.5%	6.7%

This evidence is consistent with that of the European hyperinflations (Sargent, 1982). It also puts the gradual stabilization plan being implemented by the Macri administration in perspective. Although it is too early to judge whether it will be a success or a failure, what is clear is that the evolution of the inflation rate in the first 18 months has not followed a path similar to any of the ten plans analyzed in this paper (see Appendix C for a comparison). If it meets its inflation targets for 2018 and 2019, it will meet with the definition of success proposed in this paper and break with a pattern established over the last seventy years.

<sup>10</sup> Díaz Alejandro, Carlos F., *Ensayos sobre la historia económica argentina* (Buenos Aires: Amorrortu, 1983), p.377, translated from the English version, *Essays in the Economic History of the Argentine Republic* (New Haven: Yale University Press, 1970).

## 7. Orthodox vs. Heterodox Stabilization Plans

The literature distinguishes between heterodox and orthodox stabilization plans (see Kiguel and Liviatan, 1992). The latter rely purely on fiscal and monetary measures whereas the former also (sometimes only) includes income policies such as wage and price controls. When it comes to Argentina however, the taxonomy of stabilization plans needs to include another category for those plans that didn't include any monetary or fiscal adjustment and only relied on income policies. Therefore for the purpose of the analysis that follows, I will use an alternative definition: orthodox plans involve only fiscal and monetary adjustment while heterodox only income policies; plans that combine both are hybrid.

### *Heterodoxy Index*

In order to quantify the degree of heterodoxy of the ten stabilization plans I built an index that measures a) its degree of monetary and fiscal restraint and b) its reliance on controls over key economic variables such as wages, salaries, exchange rates, capital flows and foreign trade. Both components carry equal weight. The former measures the reduction in the growth of the monetary base, the fiscal deficit and government spending relative to the sample. Since the latter are hard to quantify, each plan is assigned 1 if it at some point imposed controls and 0 otherwise. The index goes from 0 (full orthodoxy) to 2 (full heterodoxy). Although it has obvious limitations (for example, it doesn't measure the strictness of wage and price controls or their persistence), it provides a somewhat objective criteria to classify the ten stabilization plans. The table below summarizes the results:

	<b>Heterodoxy Index</b>	<b>Type</b>
Cavallo (1991)	0.13	Orthodox
Alsogaray (1959)	0.56	Orthodox
Martinez de Hoz (1976)	0.71	Hybrid
Lavagna (2002)	0.75	Hybrid
Krieger Vasena (1967)	0.84	Hybrid
Blanco (1955)	0.88	Hybrid
Gómez Morales (1952)	1.35	Hybrid
Sourrouille (1985)	1.43	Hybrid
Kicilloff (2013)	1.53	Heterodox
Gelbard (1973)	1.97	Heterodox

Although the thresholds for each category are arbitrary, the resulting taxonomy coincides generally with the way these plans have been described, both by academics and in the general press. Of the five successful stabilization plans, three could be described as hybrid (Gómez Morales, Krieger Vasena and Lavagna) and the other two as orthodox (Alsogaray and Cavallo).

In contrast with successful and unsuccessful plans, in this case the taxonomy becomes more complicated and makes the comparison less useful in some instances. Unfortunately, with only two observations for the extremes and great dispersion, deriving conclusions from averages has limited value.

Of the unsuccessful plans, three were hybrid and two heterodox. Under Blanco, the government “did not privatize state owned firms, nor did it fire public employees. It did not eliminate consumption subsidies, price controls or quantitative import restrictions” (Gerchunoff, 1989). Martínez de Hoz’ was also “lightly” hybrid, as at least in its early stages, it imposed a “truce” over wages and salaries (“*tregua*”) and also certain restriction to capital movements. Also, as pointed out by one of its strongest critics, “despite the economic team’s liberal philosophy, it never gave the [fiscal] deficit the role of a key variable... the policy [of Martínez de hoz] with respect to the public sector was more moderate that could have been expected from an economic team of declared liberal convictions... [starting in 1977] it tended to raise both state revenues and spending, leading to an important increase in tax pressure” (Canitrot, 1981). This was in part the result of political restrictions self-imposed by the military regime (De Pablo, 1987).

Lavagna’s plan can also be considered as “lightly” hybrid. On one hand, it included significant fiscal (mostly driven by higher tax revenues, which increased almost six percentage points in relation to GDP) and monetary adjustment, but on the other, it imposed a freeze on tariffs of public services and, by early 2005, “voluntary” measures to moderate price increases (a euphemism for soft price controls). Also the default on foreign debt significantly reduced public financing needs. Gomez Morales and Sourrouille both included a fiscal and monetary adjustment so they can also be considered hybrid. Gelbard’s was probably the most heterodox plans as it only relied on strict wage and price controls to reduce the inflation rate. Kicillof’s plan was also heterodox as it did not contemplate any fiscal or monetary adjustment and relied on informal price controls (and tampering with CPI statistics).

### *Inflation Rate*

Orthodoxy was clearly more effective in bringing inflation drastically under control in a sustainable manner. The table below shows the evolution of the monthly inflation rate for orthodox, hybrid and heterodox plans up to 30 months after its launch:

**Evolution of Monthly Inflation Rate under Different Types of Stabilization Plans**

	<b>Orthodox</b>	<b>Hybrid</b>	<b>Heterodox</b>
Average previous 3 months	7%	9%	4%
3-month average at 12 months	1%	3%	2%
24 months	1%	4%	5%
36 months	0%	4%	n.a.

If we look at success relative to the average annual inflation rate prevailing in the three months prior to launch (it is not the same to bring inflation down from 20% than from 800%), orthodoxy also dominates:

**Accumulated Annual Inflation Rate in Relation to Starting Level**

	<b>Orthodox</b>	<b>Hybrid</b>	<b>Heterodox</b>
Average prior 3 months	100%	100%	100%
After 12 months	6%	51%	76%
18 months	7%	50%	66%
24 months	6%	54%	102%
36 months	0%	71%	n.a.

Note: Alsogaray-Alemann only until 24 months.

Given the above data and the proposed taxonomy, we can calculate an average life and “success ratio” for orthodox, hybrid and heterodox stabilization plans:

	<b>Orthodox</b>	<b>Hybrid</b>	<b>Heterodox</b>
Average Life (yrs.)	4.0	3.6	2.1
Success ratio	100%	50%	0%

*Money Supply*

As expected, when it comes to monetary restraint, the difference between orthodox and heterodox stabilization plans is striking. Over time the latter exhibited a total lack of control over the growth in the money supply.

<b>Time</b>	<b>Relative Rate of Growth of High-powered Money</b>		
	<b>Orthodox</b>	<b>Hybrid</b>	<b>Heterodox</b>
t=0	100%	100%	100%
t=1	58%	97%	216%
t=2	30%	63%	145%
t=3	-0%	59%	528%

*Fiscal Deficit*

The evolution of the primary fiscal deficit under orthodox, hybrid and heterodox plans is determined by the definition. Interestingly, the starting point for all three is quite similar. It appears that “reform fatigue” is at play as the initial adjustment starts to wane out by the third year.

<b>Time</b>	<b>Primary Fiscal Deficit (% of GDP)</b>			<b>In relation to t=0<sup>1</sup></b>		
	<b>Orthodox</b>	<b>Hybrid</b>	<b>Heterodox</b>	<b>Orthodox</b>	<b>Hybrid</b>	<b>Heterodox</b>
t=0	4.5%	4.9%	4.9%	100%	100%	100%
t=1	2.2%	3.0%	4.0%	48%	60%	82%
t=2	-0.1%	1.1%	4.5%	-3%	23%	93%
t=3	1.1%	1.7%	9.0%	24%	33%	183%

Note: (1) using the average for each period for each type of stabilization plan.

### *Public spending*

Orthodox and hybrid stabilization plans achieved a fiscal balance by drastically and rapidly raising tax revenues and in some cases reducing public spending (including the number of public employees). Heterodox plans instead increased spending.

Time	Government Spending (% of GDP)			In relation to t=0		
	Orthodox	Hybrid	Heterodox	Orthodox	Hybrid	Heterodox
t=0	30.6%	29.4%	33.7%	100%	100%	100%
t=1	26.2%	30.2%	35.2%	86%	103%	106%
t=2	26.4%	27.9%	36.6%	86%	95%	114%
t=3	25.8%	29.3%	29.7%	85%	100%	134%

Note: Data on government spending does not include the net financial result of public enterprises.

### *Public Debt*

With respect to public debt, conventional wisdom is refuted by the evidence: under orthodox stabilization plans, public debt was reduced, whereas under hybrid and heterodox it increased. However, the average for the hybrid plans includes the period 2002-2005, when the ratio exploded due to the mega devaluation of the peso. But the conclusion is not significantly altered if both Gómez Morales and Lavagna: public debt went up under hybrid plans.

Time	Public Debt as % of GDP (100% at t=10)		
	Orthodox	Hybrid	Heterodox
t=0	100%	100%	100%
t=1	66%	133%	92%
t=2	54%	125%	101%
t=3	55%	124%	167%

Note: Data on government spending does not include the net financial result of public enterprises.

### *Current Account*

With respect to the current account, the only discernable pattern is consistently higher deficits under orthodox and heterodox plans and surpluses under hybrid plans. In the case of orthodox plans, given the greater fiscal adjustment, these deficits reflected higher investment by the private sector as well as a real appreciation of the peso, as will be seen in the next section. In the case of heterodox plans higher current account deficits may reflect a contraction in aggregate demand.

Time	Current Account (% of GDP)		
	Orthodox	Hybrid	Heterodox
t=0	0.2%	-2.8%	-1.4%
t=1	-0.1%	-0.1%	0.0%
t=2	-2.0%	1.1%	-1.3%
t=3	-3.4%	-0.3%	-3.0%



### *International Reserves*

As expected, orthodox plans showed the largest increase in international reserves. Heterodox plans' unviability is clearly evidenced in the evolution of the ratio of imports to reserves.

Time	International Reserves (100 at t=0)			Reserves as Months of Imports		
	Orthodox	Hybrid	Heterodox	Orthodox	Hybrid	Heterodox
t=0	100	100	100	10.0	6.0	4.1
t=1	211	155	188	9.0	8.7	6.7
t=2	327	224	188	8.3	9.0	5.1
t=3	302	238	133	8.4	8.1	2.5

### *Real exchange rate*

With respect to the real exchange rate, there is a clear divergence between orthodox and the rest. On average, under the former there was a significant real appreciation of the peso (in both instances). The opposite trend occurred under hybrid and heterodox plans. However, for the latter the final result is explained mostly by the corrective policies undertaken under Minister Rodrigo.

Time	Real Exchange Rate Index		
	Orthodox	Hybrid	Heterodox
t=0	100	100	101
t=1	72	121	88
t=2	59	104	88
t=3	54	104	139

### *GDP growth*

Contrary to conventional wisdom, over a period of four years, orthodox economic plans delivered significantly higher economic growth than hybrid and heterodox plans. Also contrary to conventional wisdom, orthodox plans didn't, on average, experience a recession in their first year as was the case with heterodox plans:

Time	Average Annual Growth in GDP			GDP=100 at t=0		
	Orthodox	Hybrid	Heterodox	Orthodox	Hybrid	Heterodox
t=0	2.0%	1.3%	2.2%	100	100	101
t=1	2.1%	-1.7%	0.6%	102	98	101
t=2	8.6%	4.4%	4.2%	111	102	105
t=3	6.6%	6.4%	-0.5%	118	109	109
t=4	5.9%	2.4%	n.a.	136	112	n.a.

### *Real wages*

Again, contrary to conventional wisdom, over a period of four years orthodox stabilization plans led to an increase in real wages that was higher than that achieved

by hybrid plans. Heterodox plans delivered a high rate of growth in real wages that proved unsustainable.

Time	Annual % growth in Real Wages			Real Wages=100 at t=0		
	Orthodox	Hybrid	Heterodox	Orthodox	Hybrid	Heterodox
t=0	9.4%	2.0%	-4.5%	100	100	100
t=1	-12.0%	-12.2%	1.1%	88	88	101
t=2	2.9%	0.9%	8.0%	90	89	110
t=3	7.6%	4.2%	-3.0%	97	90	119
t=4	-0.5%	-0.4%	n.a.	107	89	n.a.

### *Income Distribution*

The comparison in this case yields limited insights due to lack of data for Kicillof and the wide dispersion of data for orthodox plans. In the first two years of the Gelbard plan the participation of wages and salaries in GDP increased from 39% to 46.7% but this increase proved unsustainable. Interestingly, in relative terms, by year four Cavallo had matched that performance (under Alsogaray however, wages and salaries declined as a percentage of GDP). Also, contrary to conventional wisdom, the evolution of income distribution, as measured by the proportion of wages and salaries in GDP, was significantly more beneficial to workers under orthodox stabilization plans than under hybrid ones. However, this conclusion has to be taken with care.

Time	Wages and Salaries as % of GDP (In relation to t=0)		
	Orthodox	Hybrid	Heterodox
t=0	100%	100%	100%
t=1	97%	88%	104%
t=2	100%	85%	120%
t=3	103%	89%	116%
t=4	116%	89%	

Note: No data available for Kicillof.

### *Unemployment*

Unemployment figures are only available after 1961, so orthodox plans only include data during Cavallo's tenure. In absolute terms, orthodox plans were the most successful in reducing the unemployment rate. Interestingly, in terms of reducing the unemployment rate, over a period of three years the Convertibility Plan was able to match the relative performance of the Gelbard plan. The Hybrid plans on average were not very successful in reducing the unemployment rate.

Time	Unemployment Rate			In relation to t=0		
	Orthodox	Hybrid	Heterodox	Orthodox	Hybrid	Heterodox
t=0	7.6%	8.1%	5.6%	100%	100%	100%
t=1	5.5%	8.0%	4.8%	73%	104%	89%
t=2	5.3%	7.3%	4.2%	70%	93%	81%
t=3	4.3%	6.9%	3.6%	57%	88%	53%

Note: No data available for Gómez Morales, Blanco and Alsogaray.

### *The International Economic and Financial Environment*

When it comes to agricultural commodity prices, orthodox and hybrid plans were not as “lucky” as heterodox ones. However, when the impact of import prices are taken into account the picture changes: orthodox plans experienced the highest increase in the terms of trade (by the end of the Convertibility, the terms of trade were 10% higher than in 1991).

Time	Agricultural Commodity Prices			Terms of Trade		
	Orthodox	Hybrid	Heterodox	Orthodox	Hybrid	Heterodox
t=0	100	100	100	100	100	100
t=1	88	99	127	105	94	106
t=2	93	94	150	112	89	96
t=3	97	95	206	114	91	85
t=4	105	98	n.a.	108	89	n.a.
<i>Average</i>	<i>96</i>	<i>97</i>	<i>139</i>	<i>110</i>	<i>91</i>	<i>96</i>

In terms of real and nominal interest rates, heterodox plans enjoyed an advantage that was higher in the former than in the latter. They also faced a scenario of declining real rates. In terms of nominal rates the differences were negligible.

Time	Nominal Long Term US Interest Rates			Real Long Term US Interest Rates		
	Orthodox	Hybrid	Heterodox	Orthodox	Hybrid	Heterodox
t=0	5.9%	5.2%	7.0%	1.8%	1.5%	3.8%
t=1	6.1%	5.1%	6.7%	3.4%	2.2%	2.8%
t=2	5.6%	5.2%	5.8%	3.2%	1.0%	1.5%
t=3	4.9%	5.7%	6.1%	2.8%	1.0%	1.8%
t=4	5.5%	6.4%	n.a.	3.6%	1.0%	n.a.
<i>Average</i>	<i>5.9%</i>	<i>5.7%</i>	<i>6.9%</i>	<i>3.5%</i>	<i>1.1%</i>	<i>2.0%</i>

## 8. Conclusion

Despite its obvious limitations, the comparison of the only ten stabilization plans that lasted at least two years yields several interesting and robust conclusions, which given the paucity of the data, should be taken as tentative: i) in the medium term gradualism did not work (however, it is also true that in the long run shock policies didn't work

either), ii) successful plans always included significant monetary and fiscal adjustment, iii) wage and price controls are not necessary nor sufficient to reduce inflation or to ease the cost of adjustment, iv) orthodox plans were more effective than hybrid or heterodox plans in reducing inflation, v) contrary to conventional wisdom over time successful plans delivered significantly higher growth in GDP and real wages and improved the distribution of income for workers (same can be said about orthodox plans versus heterodox ones), vi) with respect to the external environment, low US interest rates did not seem to have a significant impact on success, whereas failure was always associated with declining terms of trade.

The evidence confirms that the measures required to reduce the inflation rate in the short and medium-term –basically fiscal and monetary adjustment and restraint– are also necessary to eradicate populism (i.e., to reduce inflation in the long run). However, in the last seventy years political factors have constrained the ability of policymakers to maintain such measures over time while simultaneously enacting meaningful structural reform.

The historical evidence presented in this paper helps put in perspective the stabilization program being currently implemented by the Macri administration. Although it is too early to judge whether it is a success or failure (according to most reliable estimates, after 24 months the current stabilization plan will have reduced the annual inflation rate to 20%), the evolution of the inflation rate does so far not fit the path of any of the ten stabilization plans analyzed in this paper. The external environment so far presents a mixed picture: lower terms of trade but also very low real and nominal interest rates (the former have proven to be more important than the latter). To the extent the current effort to bring down inflation succeeds, it will break with patterns seen over the last seventy years. And therefore it will also suggest that Argentina is finally overcoming its addiction to populism. However, “this time is different” has proven to be one the most dangerous phrases in the world of economics and finance.

## **Bibliography**

Cagan, Philip, (1956). "The Monetary Dynamics of Hyperinflation." In Friedman, Milton (ed.), *Studies in the Quantity Theory of Money*, (Chicago: University of Chicago Press).

Canitrot, Adolfo, (1981). “Teoría y práctico del liberalismo. Política antiinflacionaria y apertura económica en la Argentina, 1976-1981”, *Desarrollo Económico*, Vol. 21, No. 82. (Jul. - Sep., 1981), pp. 131-189.

De Pablo, Juan Carlos, (1987). “Proceso a la economía del Proceso”, *Segundas Jornadas Anuales de Economía*, Banco Central del Uruguay, Montevideo, 9-11 November 1987.

Dornbusch, Rudiger and Juan Carlos de Pablo, (1990). “The Process of High Inflation” in Sachs, Jeffrey A. (Ed.), *Developing Country Debt and Economic Performance* (Chicago: University of Chicago Press, 1990), Vol.22, pp. 77-91.

Dornbusch, Rudiger and Sebastián Edwards, (1990). “Macroeconomic Populism” *Journal of Development Economics*, Vol. 32, pp. 247-277, (1990).

\_\_\_\_\_, editors, (1991). *The Macroeconomics of Populism in Latin America*, (Chicago: University of Chicago Press).

Dornbusch, Rudiger, Federico A. Sturzenegger and Holger Wolf, (1990). “Extreme Inflation: Dynamics and Stabilization”, *Brookings Papers on Economic Activity*, 2:1990.

Fernández, Roque B., (1984). “Inflación y Economía del Estado”, *CEMA Working Papers: Serie Documentos de Trabajo*. 43. Universidad del CEMA (July 1984).

\_\_\_\_\_, (2017). “Dólar, Inflación, Déficit y la Economía Política Argentina”, *CEMA Working Papers: Serie Documentos de Trabajo*. 609. Universidad del CEMA (April 2017).

Friedman, Milton, (1968). *Dollars and Deficits: Inflation, Monetary Policy and the Balance of Payments* (Englewood Cliffs: Prentice Hall, 1968), p.98.

Gerchunoff, Pablo, (1989). “A Note on the Economic Policies of the Liberating Revolution”, en di Tella, Guido and Rudiger Dornbusch (eds.), *The Political Economy of Argentina, 1946–83* (London: The Macmillan Press Ltd, 1989), p. 103.

Harberger, Arnold, C., (1978). “A Primer on Inflation”, *Journal of Money Credit and Banking*, Volume 10, Issue 4 (Nov. 1978), pp. 505-521.

Kiguel, Miguel A. and Nissan Liviatan, (1992). “When do heterodox stabilization programs succeed? Lessons from experience”, *The World Bank Research Observer*, vol. 7, no. 1 (January 1992), pp. 35-57.

Machlup, Fritz A., (1983). “The Political Economy of Inflation”, *Cato Journal*, Vol. 3, No. 1 (Spring 1983).

Ocampo, Emilio, (2015a). “Commodity Price Booms and Populist Cycles. An Explanation of Argentina’s Decline in the 20th Century”, *CEMA Working Papers: Serie Documentos de Trabajo*. 562, Universidad del CEMA.

\_\_\_\_\_(2015b). *Entrampados en la Farsa: El populismo y la decadencia argentina* (Buenos Aires: Editorial Claridad, 2015).

\_\_\_\_\_(2016). “Measuring the Tail Wind for an emerging market economy: The Case of Argentina”, *CEMA Working Papers: Serie Documentos de Trabajo*. 600. Universidad del CEMA.

Rapoport, Mario, (2011). “Una revisión histórica de la inflación argentina y de sus causas” in Vázquez Blanco, Juan Manuel, and Juan Santiago Frascina (eds.), *Aportes de la Economía Política en el Bicentenario* (Buenos Aires: Prometeo, 2011), pp.135-165.

Sargent, Thomas, (1982). “The End of Four Big Inflations”, in Hall, Robert E. (Ed.), *Inflation: Causes and Effects* (Chicago: University of Chicago Press, 1982), pp. 41-98.

Sturzenegger, Federico A., “Description of a Populist Experience: Argentina, 1973-1976”, in Dornbusch, Rudiger and Sebastian Edwards (eds.), \_\_\_\_\_, editors, (1991). *The Macroeconomics of Populism in Latin America*, (Chicago: University of Chicago Press), pp.77-120.

Vegh, Carlos, (1991). “Stopping High Inflation: An analytical overview”, *IMF Working Papers*, WP 91/107, Washington D.C., November 1991.

White, Michael V. and Kurt Schuler, (2009). “Who said “debauch the currency”: Keynes or Lenin?”, *Journal of Economic Perspectives*, Vol. 23, No. 2, Spring 2009, pp. 213–222.

## Appendix A.

**Table 5. Successful Stabilization Plans**

<b>T</b>	<b>Gómez Morales (1952)</b>	<b>Alsogaray (1959)</b>	<b>Krieger Vasena (1967)</b>	<b>Cavallo (1991)</b>	<b>Lavagna (2002)</b>
0	54.2%	127.1%	29.9%	767.8%	18.4%
1	45.8%	125.9%	26.7%	582.0%	23.0%
2	44.0%	124.0%	26.6%	287.3%	28.4%
3	37.1%	123.7%	26.7%	267.0%	32.9%
4	24.9%	118.6%	25.6%	232.1%	36.5%
5	31.6%	112.4%	25.5%	200.7%	38.5%
6	29.0%	101.6%	29.8%	178.3%	39.4%
7	28.9%	75.9%	34.2%	144.4%	40.6%
8	19.1%	62.6%	33.1%	115.0%	40.9%
9	13.1%	52.6%	31.7%	102.4%	39.6%
10	18.8%	40.8%	31.3%	91.3%	36.1%
11	14.9%	27.2%	31.3%	84.0%	31.7%
12	3.6%	19.0%	27.4%	76.0%	19.4%
13	0.3%	16.6%	29.0%	41.6%	14.3%
14	-1.9%	12.9%	27.6%	30.2%	10.2%
15	3.1%	11.0%	24.0%	25.0%	7.3%
16	3.6%	11.2%	22.0%	22.4%	4.9%
17	-0.4%	11.7%	21.0%	19.6%	3.5%
18	-1.8%	18.5%	16.3%	18.6%	3.9%
19	-1.4%	8.3%	10.8%	18.8%	3.6%
20	-0.7%	8.8%	10.6%	18.0%	3.7%
21	-1.4%	9.2%	11.6%	17.9%	2.7%
22	-7.0%	11.8%	10.6%	18.0%	2.3%
23	-6.4%	12.8%	8.5%	17.5%	2.3%
24	-0.3%	14.9%	9.6%	15.0%	3.1%

**Table 6. Unsuccessful Stabilization Plans**

<b>T</b>	<b>Blanco (1955)</b>	<b>Gelbard (1973)</b>	<b>Martinez de Hoz (1976)</b>	<b>Sourrouille (1985)</b>	<b>Kicillof (2013)</b>
0	12.3%	79.1%	566.3%	804.3%	24.3%
1	6.1%	64.8%	713.4%	851.0%	28.4%
2	7.5%	56.9%	777.6%	938.9%	36.1%
3	8.4%	58.4%	644.3%	1010.0%	39.6%
4	7.5%	55.4%	475.8%	1128.9%	41.0%
5	7.2%	50.5%	396.1%	1003.2%	41.6%
6	9.4%	44.7%	395.0%	825.7%	38.1%
7	13.4%	43.8%	371.8%	640.2%	37.9%
8	17.1%	29.6%	367.4%	532.4%	39.3%
9	16.0%	22.3%	347.5%	463.1%	40.3%
10	15.0%	14.0%	344.0%	385.4%	41.9%
11	14.9%	12.2%	303.9%	299.6%	40.2%
12	16.5%	12.1%	215.8%	236.7%	37.6%
13	18.2%	19.9%	150.0%	178.6%	33.6%
14	16.7%	22.6%	137.5%	125.3%	27.4%
15	16.9%	23.9%	148.9%	87.4%	26.6%
16	18.7%	27.4%	156.3%	50.1%	26.8%
17	23.2%	30.2%	170.4%	50.9%	26.2%
18	22.2%	34.5%	164.9%	59.3%	27.1%
19	21.0%	40.1%	174.7%	67.5%	27.3%
20	21.0%	52.9%	177.5%	74.2%	26.8%
21	23.8%	57.5%	160.4%	79.2%	26.0%
22	31.1%	68.3%	173.3%	81.9%	25.3%
23	30.1%	79.5%	168.1%	90.0%	25.6%
24	29.8%	80.5%	172.9%	98.8%	27.9%



## Appendix B.

**Table 7. Accumulated Annual Inflation Rate relative to Month prior to Launch**

<b>Month</b>	<b>Average 10</b>	<b>Successful 4</b>	<b>Successful 5</b>	<b>Failures 5</b>	<b>Failures 4</b>
0	100%	100%	100%	100%	100%
1	93%	97%	95%	96%	91%
2	94%	95%	92%	107%	97%
3	95%	100%	94%	109%	95%
4	90%	102%	91%	105%	89%
5	87%	102%	94%	98%	79%
6	86%	104%	94%	92%	76%
7	86%	103%	93%	93%	77%
8	82%	99%	87%	94%	77%
9	75%	94%	80%	89%	69%
10	70%	86%	76%	84%	62%
11	63%	77%	67%	79%	57%
12	49%	55%	46%	74%	54%
13	46%	48%	39%	72%	56%
14	40%	40%	32%	63%	51%
15	38%	33%	28%	63%	51%
16	38%	28%	24%	66%	55%
17	40%	25%	20%	74%	66%
18	39%	23%	18%	75%	65%
19	36%	16%	12%	75%	65%
20	38%	16%	13%	78%	70%
21	41%	16%	12%	82%	76%
22	47%	15%	9%	97%	95%
23	48%	13%	8%	98%	97%
24	50%	16%	12%	97%	97%

**Appendix C.**

**Graph 1. Accumulated Annual Inflation Rate relative to Month prior to Launch**

