MODERN MONETARY THEORY:

CAUTIONARY TALES FROM LATIN AMERICA

by

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ABSTRACT

According to *Modern Monetary Theory (MMT*) it is possible to use expansive monetary policy – money creation by the central bank (i.e. the Federal Reserve) – to finance large fiscal deficits that will ensure full employment and good jobs for everyone, through a "jobs guarantee" program. In this paper I analyze some of Latin America's historical episodes with MMT-type policies (Chile, Peru. Argentina, and Venezuela). The analysis uses the framework developed by Dornbusch and Edwards (1990, 1991) for studying macroeconomic populism. The four experiments studied in this paper ended up badly, with runaway inflation, huge currency devaluations, and precipitous real wage declines. These experiences offer a cautionary tale for MMT enthusiasts.

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KEY WORDS: Modern Monetary Theory, central bank, inflation, Latin America, hyperinflation, populism

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1. Introduction

During the last few years an apparently new and revolutionary idea has emerged in economic policy circles in the United States: *Modern Monetary Theory (MMT)*. The central tenet of this view is that it is possible to use expansive monetary policy – money creation by the central bank (i.e. the Federal Reserve) – to finance large fiscal deficits, and create a "jobs guarantee" program that will ensure full employment and good jobs for everyone.[1] This view is related to Abba Lerner's (1943) "functional finance" idea, and has become very popular in progressive spheres. According to MMT supporters, this policy would *not* result in crowding out of private investment, nor would it generate a public debt crisis or inflation outbursts. [2]

MMT runs against received wisdom among economists, and has been resisted by Keynesians and monetarists alike. Respected and influential academics such as Paul Krugman, Kenneth Rogoff, and Larry Summers, among others, have stated that MMT makes little sense. Krugman has written that the principles behind MMT are "indefensible," and that the arguments made by its supporters are "sophistry."[3] According to Rogoff, MMT is "nonsense" based "on some fundamental misconceptions."[4] And Summers has contended that embracing "modern monetary theory is a recipe for disaster."[5]

MMT supporters have responded by saying that their critics don't truly understand how modern monetary economies work. According to them, in countries with a currency of their own governments don't face a hard budget constraint; the government can always print additional money to pay for higher expenditures.[6] According to Stephanie Kelton (2019) "the government budget is not like a household budget *because the government prints its own money*."[7] Along similar lines, Forstater and Mosler (2005) have argued that in a "fiat money" system the natural rate of interest is zero; the role of the monetary authority is to push the actual rate to zero,

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[1] See Wray (2015) for details. The term "Modern" is supposed to be an inside joke, and refers to a statement made by Keynes in page 4 of "*A Treatise on Money*" (1930), where he says that for at least four thousand years money has been the creation of the State. Money is whatever the State accepts in payment of taxes. See Knapp (1904).
[2] See, for example, Forstater and Mosler (2005), Tymoigne and Wray (2013, 2015), and Wray (2013) and the literature cited therein. Scott Sumner has discussed MMT in depth in his blog. See Sumner and Horan (2019).
[3] https://www.nytimes.com/2019/02/25/opinion/running-on-mmt-wonkish.html
[4] https://www.project-syndicate.org/commentary/federal-reserve-modern-monetary-theory-dangers-by-kenneth-rogoff-2019-03
[5] https://www.washingtonpost.com/opinions/the-lefts-embrace-of-modern-monetary-theory-is-a-recipe-for-disaster/2019/03/04/6ad88eec-3ea4-11e9-9361-301ffb5bd5e6_story.html?utm_term=.a6e4c2bbafc1
[6] MMT has also been called "Neo-Chartalism." The term Chartalism was introduced by German economist G.F. Knapp in 1905 to refer to a theory where the value of money is not tied to the value of a commodity, such as gold. It is interesting to notice that Schumpeter (1954, p. 288) spelled the term as "Cartalism."
[7] https://www.barrons.com/articles/stephanie-kelton-wantsyou-to-rethink-the-deficit-1536853788. Emphasis added.

through the purchase of government securities. If long term equilibrium interest rates are equal to zero, then, $r < g$ in growing economies, and there would be no explosion of government debt.[8]

MMT supporters have argued that in order for these policies to work, the country in question does not need to have a "convertible currency"; all is needed is sovereign fiat money that economic agents *have* to use to pay taxes. Thus, MMT would still work in emerging countries with a currency of their own, including in many of the nations of Asia and Latin America. Supporters have also posited that MMT policies would work best in countries that do not have a fixed exchange rate.[9]

Efforts to evaluate the merits of MMT have run into two types of difficulties: First, there is no unified and generally accepted description of how the MMT model is supposed to work in detail. This is not due to a lack of publications. In fact, MMTers are prolific authors, and have published a large number of papers, pamphlets and books, including some primers. However, these works contain very few (if any) equations or diagrams; MMT authors have generally avoided the language that, for better or for worse, has become dominant in scholarly conversations among professional economists.[10] By doing this, MMTers have left themselves open to the criticism that their views and models lack clarity. According to Paul Krugman (2019) MMT supporters "*tend to be unclear* about what exactly their differences with conventional views are, and also have a strong habit of dismissing out of hand any attempt to make sense of what they're saying."[11]

A second difficulty in evaluating MMT is that its supporters have offered very little *empirical evidence* on how the policy would function, especially in the medium and longer run.[12] Although some authors have argued that Japan during the last decade or so provides evidence that the approach works, most critics – including the Governor of the Bank of Japan, Haruhiko Kuroda – disagree with that contention.[13] When discussing the applicability of MMT to the United States, Neil Irwin (2019) has argued that it is important to have the policies first implemented in a small country, as an experiment. He wrote:[14]

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[8] For a skeptical view see, for instance, Sumner and Horan (2019).
[9] Wray (2015, pp. 124-129).
[10] See, for example, Forstater and Mosler (2005), Tymoigne and Wray (2013), and Wray (2015, 2018) and the literature cited therein.
[11] https://www.nytimes.com/2019/02/12/opinion/whats-wrong-with-functional-finance-wonkish.html. Emphasis added.
[12] There seems to be agreement that in the short run, and under especial circumstances, such a severe crisis similar to the one triggered by the subprime mortgages collapse, a short run policy based on massive purchases of government paper by the Central bank would make sense.
[13] https://www.bloomberg.com/news/articles/2019-04-10/kuroda-foe-says-japan-to-prove-modern-monetary-theory-a-mistake
[14] https://www.nytimes.com/2019/03/07/upshot/modern-monetary-theory-small-country-first.html

> "It would be nice to have some proof of concept before it is put in place in the largest economy in the world — also home to the world's reserve currency… It would be genuinely fascinating to watch a small country — with its own currency — govern itself according to the [MMT] theory's principles... If those smaller countries can work out the kinks of economic governance in an MMT world, and achieve a higher standard of living, maybe then scale it up to a midsize country?"

It turns out that MMT – or some version of it – has been tried in a number of emerging countries. Although most cases have taken place in Latin America, there have also been episodes in other parts of the world, including in Turkey and Israel. MMT-type policies were also attempted in France during the Mitterrand presidency. Almost every one of the Latin American experiments with major central bank-financed fiscal expansions took place under populist regimes, and all of them ended up badly, with runaway inflation, huge currency devaluations, and precipitous real wage declines. In most of these episodes –Argentina, Bolivia, Brazil, Chile, Ecuador, Nicaragua, Peru, Venezuela – policy makers used arguments similar to those made by MMTers to justify extensive use of money creation to finance very large increases in public expenditures.[15]

In this paper I analyze some of Latin America's episodes with MMT-related policies, and I show that all these cases ended up in major macroeconomic disasters. The analysis uses the framework developed by Dornbusch and Edwards (1990, 1991) for studying macroeconomic populism. The rest of the paper is organized as follows: In Section 2 I present the basic principles of Latin American populism, and compare them to MMT. In Section 3 I analyze three specific Latin American episodes with major central bank-financed fiscal expansions: Chile during President Salvador Allende's socialist experiment (1970-1973); Peru during the first Alan Garcia presidency (1985-1990); and Venezuela, under Hugo Chávez and Rafael Maduro (1998-now). These are the "cautionary tales" referred to in the title of this paper. Finally, in Section 4 I provide some concluding remarks, including a brief discussion of MMTs weakest points.

2. Latin American Populism

2.1 The mechanics of Latin American populism and MMT

Macroeconomic populism is usually defined as a set of policies aimed at redistributing income by running high fiscal deficits, financed through an expansive monetary policy.[16] In the language

[15] For analyses of populist experiences in Latin America, see, for example, Dornbusch and Edwards (1991) and Edwards (2010).

[16] See Dornbusch and Edwards (1990, 1991). Edwin Williamson (1992, p. 347), defined populism as "the phenomenon where a politician tries to win power by courting mass popularity with sweeping promises of benefit and concessions to the lower classes." Political scientist Michael L. Conniff (1982, p. 82) pointed out that "populist

of textbook macroeconomics, these are policies where the government shifts simultaneously, and significantly, the IS and the LM curves. [17] In every Latin American experience with populist policies the government granted wage increases – both public sector and minimum wages – that exceeded significantly what was justified by improvements in productivity. Just as MMTers, populist politicians present heterodoxy as the solution to the nation's ills, and in particular to the suffering of the middle and lower classes. [18]

For populists, one of the features of capitalist economies is the existence of substantial idle capacity. Thus, in their view, large and persistent fiscal deficits financed through money creation do not result in serious imbalances, high inflation, and, eventually, in crises. For populists the contrary is true: large fiscal deficits expand demand and encourage output, allowing firms to exploit economies of scale and to use resources fully. For them the combination of large deficits with redistributive policies result in a decline in inflation. Populists tend to dismiss possible collapses in the demand for domestic money, and increases in the velocity of circulation; in this their perspective is, again, very similar to that of MMT supporters. [19]

These views are clearly captured by the following quote from Daniel Carbonetto (1987, p.82), the economist behind Alan Garcia's populist policies in Peru in the second half of the 1980s: "If it were necessary to summarize the strategy adopted by the government since August 1985 with two words, they are *control* (meaning control of prices and costs) and *spend*, transferring resources to the poor so that they increase consumption…" Carbonetto then added that budget constraints had to be ignored:

> "It is necessary to spend, even at the cost of a large fiscal deficit, because, when this deficit transfers public resources to increase consumption of the poorest, they demand more goods and this will bring about a reduction in unit costs. Thus the deficit is not inflationary."

This statement, is very similar to what Stephanie Kelton, one of the most prominent supporters of MMT stated in 2019: "the government budget is not like a household budget *because the*

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programs frequently overlapped with those of socialism." More recently, Acemoglu, Egorov, and Sonin (2012, p. 771) stated that populist "politicians use a rhetoric that aggressively defends the interests of the common man against the privileged elite." Eichengreen (2018, p.1) wrote that populism is a "political movement with anti-elite, authoritarian, and nativist tendencies." Parts of this section draw on Edwards (2019).

[17] Frenkel (2006) discusses a heterodox monetary policy geared at maximizing employment. He presents his proposal as an alternative to orthodox inflation targeting policies.

[18] In Dornbusch and Edwards (1991), case studies for Argentina, Chile, Peru, Colombia, Brazil, and Nicaragua are presented.

[19] See Chapter 8 in Edwards (2010).

government prints its own money."[20] It is also similar to what Wray (2015, p. 104) writes in his primer on MMT: "The following statements do *not* apply to a sovereign currency issuing government… Governments have a budget constraint… [g]overnment deficits drive interest rates up, crowd out the private sector and lead to inflation."

In addition to rejecting fiscal balance and sound monetary policy, Latin American populists reject markets, competition, and globalization. They believe in price and exchange controls, high minimum wages, high import tariffs, and large subsidies, mostly for food and public transportation. They support state-owned-enterprises, and they favor nationalizing large multinationals (often associated to natural resources, such as oil and mining). In some instances, Latin American populists have borrowed from Marxist ideology, as was the case with Hugo Chavez's "Socialism of the 21 century" program.[21]

But, it would be a mistake to believe that populists "like" or "favor" inflation. They don't. In fact, before taking power, populist politicians usually declare that one of their fundamental objectives is to reduce or eliminate inflation. They state that price increases benefit large monopolistic firms, and hurt the working class. For instance, in Chile, the Unidad Popular electoral platform of 1970 stated that a main goal of the "popular government" was to achieve "price stability."[22] In repeated speeches President Salvador Allende pointed out that price controls would play a key role in defeating inflation.[23] For President Salvador Allende the fact that the quantity of money increased by 124% during his first year in office was not a problem; on the contrary, for him monetary expansion played a key role in helping finance Chile's move towards Socialism.[24] MMT supporters also assert that one of their main goals is to achieve stability. According to Wray (2015, p. 244) "MMTers fear inflation... Indeed, price stability has always been one of the two key missions of [the MMT approach]."

To summarize, the discussion presented above indicates that there are a number of coincidences between the policy recommendations (and actions) of Latin American populists and MMT supporters. In order to further organize the discussion, in Table 1 I present a systematic comparison of both perspectives on a number of key policies.

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[20] https://www.barrons.com/articles/stephanie-kelton-wantsyou-to-rethink-the-deficit-1536853788. Emphasis added.

[21] Many of their views are associated with the traditional "structuralism approach" to economic development, espoused by thinkers such as Raul Prebisch.

[22] http://www.abacq.net/imagineria/frame5b.htm#05

[23] Interestingly, Abba Lerner, an inspiration for MMTers, argued that the most efficient way to deal with inflationary pressures was the use of price controls.

[24] See the various speeches on the economy in Allende (1989).

2.2 The four phases of Latin American populism

Most macroeconomic populist experiments go through four distinct phases that span from euphoria to collapse. The length of the cycle depends on a number of factors, including the evolution of the terms of trade, political institutions, the availability of foreign financing by friendly nations, and the degree of political repression.[25] In the vast majority of Latin American populist episodes, the leader comes to power after a major crisis. In many cases, the IMF has been called to bring order into the economy. In every case, the IMF imposes an "austerity-based" adjustment program, which exacerbated the sense of frustration among the country's citizens, and in particular among the middle and lower classes. Although a structurally unequal distribution of income is not a requirement for the emergence of populism, populist rhetoric is more attractive in countries with significant income disparities, or in countries were inequality has raised during the immediate past.[26] These are the four phases of populism episodes identified by Dornbusch and Edwards (1991):

During ***Phase 1***, policies very similar to those espoused by MMT are first put in place. Government expenditures increase rapidly, and massive income transfers are implemented. Public sector wages and minimum wages are raised, and large public sector investment projects enacted. These policies are financed by a combination of easy money that flows from the central bank, and foreign resources that come from the country's international reserves. During this early phase the populist views appear to be vindicated. The populist leader repeatedly makes the point that orthodox economics and its supporters are wrong.

During ***Phase 2*** the consequences of the overly expansive heterodox policies begin to show up, and bottlenecks and imbalances emerge. Foreign exchange becomes scarce and there are significant forces for the currency to depreciate rapidly. Exchange controls are introduced – France under Mitterrand, in 1984, is a good example of this development, from outside of Latin America. In some cases, traditional exports are taxed. In spite of these measures, prices continue to rise. The populist response is to decree generalized price controls. Unions ask for higher salaries, and indexation practices are adopted. The central bank continues to lend vast amounts to the public sector, helping maintain the experiment alive. The economy enters into an inflationary spiral. A black market for necessities, and a parallel market for foreign exchange appears.

Phase 3 is characterized by a deepening of imbalances. Inflation accelerates, generally moving to the three or four digits' terrain. Fiscal dominance becomes more acute, as the central bank continues to finance the government. The frequency of price adjustments through indexation

[25] A formal model that captures these cycles is presented in Dornbusch and Edwards (1990). Acemoglu et al (2012) develop a more general model that generates this type of populist dynamics.
[26] Edwards (2010), Chapter 8.

increases, first to quarterly and then to monthly intervals. Pervasive indexation tends to worsen the fiscal accounts through the so-called "Olivera-Tanzi effect." Government expenditures increase according to the indexing formula, while tax revenues are collected based on lagged income figures. Consumers ditch the domestic money, and foreign exchange becomes the medium of exchange. However, since the government requires that taxes are paid in domestic currency, the local monies (pesos, soles, escudos, bolívares, córdobas) do not disappear completely. Demand, however, falls very rapidly, with velocity of circulation increasing significantly. The disparity between inflation (very high) and exchange rates (depreciating more slowly) intensifies the extent of real exchange rate overvaluation.[27]

During ***Phase 4*** the populist regime is finally replaced. The new post-populism government faces a very fragile economy and frequently a mess. Inflation is usually (very) high, international reserves are non-existing, exports are at an all-time low, the government debt is in default, and the real economy is replete with distortions. When the new government comes into power, real incomes and wages are often below what they were at the beginning of the experiment.

3. Three populist episodes in Latin America: Lessons for MMT supporters

In this Section I analyze three of Latin America's best known populist episodes: Chile during President Salvador Allende's socialist experiment from 1970 through 1973; Peru during the first Alan Garcia administration (1985-1990); and Venezuela during the Presidents Hugo Chavez and Nicolas Maduro governments (1998-now). Although each of these cases is unique, the three of them share the populist pattern discussed above. Also, the three of them ended up in major crises. The case of Chile, is possibly the most dramatic one, as the experiment with populist-socialist policies of President Salvador Allende ended up in a violent coup which was followed by a 17-year dictatorship. In Chile, inflation exceeded 500% in 1973. In both Peru and Venezuela, the central bank-financed fiscal expansions ended up in hyperinflation. In Peru the rate of inflation peaked at almost 8,000%, and the International Monetary Fund has forecasted that inflation in Venezuela will be almost one million percent in 2019. Venezuela's episode had its roots in the deteriorating social and economic conditions since the Caracas riots of 1992.[28]

The three countries studied in this Section had a sovereign currency, and thus could (and did) follow the type of policies recommended by MMT economists. In addition, in all cases the exchange rate was not strictly fixed; the price of foreign currency was adjusted frequently (in

[27] In some cases, such as Venezuela under Nicolas Maduro, economic conditions become so bleak that the population becomes undernourished and outmigration increases significantly. Rodriguez (2008).
[28] In Edwards (2010) I discuss Chile, Argentina and Venezuela. For Peru see Dornbusch and Edwards (1990) and Lago (1991). For Chile, see also Edwards and Edwards (1991).

some cases daily) through a crawling rate regime or a "dirty float" system.[29] In every one of the episodes exchange controls of one type or another were eventually put in place in an effort to slow down currency depreciation.[30]

I begin the discussion by presenting data on economic growth, and documenting the transition from euphoria to distress. I then discuss the expansion of public sector expenditures financed by central bank money creation, and the resulting inflation outbursts. The Section ends with an analysis of the evolution of social conditions. I show that in the three cases, when the populist regime was replaced, real wages were lower than when the populist leader took over.

3.1 Growth and populism phases

In Figures 1-A through 1-C I present data on GDP growth for the three episodes. There are two (red) vertical lines in these graphs. The first one corresponds to the initial year of the populist episode; the second red line refers to the first year of the post-populist regime. The similarities across cases are quite remarkable; the different phases of populist experiments are easy to detect in each one of these Figures.

- In the three episodes it is possible to see that the initial conditions are characterized by either very low or negative growth. As noted, these depressed circumstances give the populist leader the opportunity to present his/her nationalistic, anti-globalization and anti-elite program, and to get to power. In Chile, growth in 1970 was 2.0%, which meant that per capita growth was zero.[31] In Peru, there was an IMF programs at the time Alan García over the governments. Economic conditions were also negatively affected by the El Niño climatic phenomenon, which resulted in some of the worst flooding in the country's history.[32] In Venezuela, growth was negative the year Chávez won the elections. Depressed initial conditions in Venezuela were the result of a succession of failed adjustment programs – some supported by the IMF–, and a decline in the price of oil. Memories of the repression and deaths during the *Caracazo* also contributed to the support for Chavez and his program.[33]

[29] Wray (2015) has stated that MMT policies work better if the central bank does not make a firm commitment to exchanging the sovereign money into a commodity (gold) or another currency.
[30] For a list of requirements for MMT to work, see Wray (2015).
[31] As will be seen below in 1970 inflation in Chile was a very high 35%. This was an important component of the sense of crisis in the country. In fact, as mentioned earlier, achieving price stability was one of President Allende's more important goals. See Edwards and Edwards (1991).
[32] Alan García became President in July 1985. During 1984 Peru had signed an IMF program, for 104 million SDRs. Peru stopped making payments to the IMF in 1987. Venezuela obtained IMF support in 1996 (300 million SDR), under the presidency of Rafael Caldera, Hugo Chavez's predecessor.
[33] Edwards (2010).

- As may be seen from these Figures, Phase 1, with its booming growth, follows the launching of the populist programs. In Chile the economy grew at an impressive 9% during the first year of President Salvador Allende's Unidad Popular government. Peru saw its GDP growth jump to 12% in 1986, one year after Alan García's election. In Venezuela there was also important GDP recovery after the accession to power of the new leader. In Venezuela it is possible to detect the negative effect of the global financial crisis of 2008-2009. However, there is a recovery, and the good times continued for a few additional years. In Venezuela, the positive-growth phase was rather longer than usual. This was thanks to very positive terms of trade; the price of oil and soybeans were very high during the early years of this episode (Edwards, 2019).

- Eventually, in every one of the three countries the day of reckoning arrives, and Phase 3, with the collapse in growth becomes a reality. As may be seen, in Chile there was negative growth in 1972, the second year of the Allende administration. In Peru growth was negative 9 % in 1989, towards the end of the Alan Garcia presidency. In Venezuela de economy collapsed in 2014. During Phase 4 the new post-populist government had to put in place policies aimed at reducing inflation and reigniting growth.

3.3 Monetary policy, fiscal imbalances and inflation

As noted, in all of these episodes there were massive fiscal expansions financed by money creation by the central bank. In Chile, the Unidad Popular government also nationalized the banking sector, as a way to facilitate the flow of credit to newly nationalized companies. In Peru, President Alan García tried to follow Allende's footsteps and nationalize the banking and financial sectors. However, there was a massive popular opposition, and after weeks of protests led by novelist and future Nobel Prize winner Mario Vargas Llosa, the government gave up on the attempt.[34] In Venezuela, the central bank came under significant political pressure, and in the early years of the Chávez administration its degree of independence was greatly reduced. Its main mission became to support the government achieve its political and social development goals (Carriere-Swalow et. al. 2016).

In Tables 2 through 4 I present data on a number of key macroeconomic variables: public sector balance as percentage of GDP, rate of growth of the monetary base, annual inflation rate, current account balance over GDP, and real GDP growth. In addition to the boom to bust dynamics of growth discussed above, several results stand out from these Tables.

- *Fiscal expansion*: In all cases the fiscal deficit becomes very large during the episode. In two of the cases (Chile and Peru) a large imbalance develops immediately after the

[34] Larrain and Meller (1991), Edwards and Edwards (1987).

populist leader takes over. In Venezuela, it takes some time for the deficits to explode; but eventually it does happen. This delay is due to the extraordinarily high export prices during the early years of this experiment (Edwards 2019).

In the case of Chile, I present two series for fiscal balance. The first one refers to the central government accounts, and shows that in 1973, the last year of the Allende administration, the deficit was almost 25% of GDP. The next column presents data for the "consolidated public sector" for 1970-1973, and includes state owned enterprises. As may be seen, in 1973 this measure reached and astonishing negative 30% of GDP.

In Peru, in 1983, two years before Alan García got to power, there was already a huge deficit: 11.6% of GDP (Table 3). In 1984, President Fernando Belaunde decided to call in the IMF, and an orthodox stabilization program was put in place. The data in Table 3 show that between 1983 and 1985 there was a draconian fiscal adjustment that amounted to 8% of GDP. This drastic fiscal correction generated a substantial jump in unemployment and a precipitous decline in real wages -- 39% between 1982 and 1985 --, and paved the way to Alan García's electoral success in 1985. One of the first measures taken by García was to suspend the IMF program, and to go back to very expansive fiscal policies. As may be seen in Table 2, in Peru the deficit exceeded 10% of GDP in 1987, 1988 and 1989. In 1990 it was slightly down to 8% of GDP. Throughout these years it was mostly financed by money creation by the central bank. (Martinelli and Vega, 2018).

The picture for Venezuela, in Table 4, shows that during the early years of the Chávez administration the public sector ran a surplus. With the exceptions of 1998 and 2001, and thanks to a very high international price of oil, the early years of the Bolivarian Revolution were characterized by (relatively) balanced public sector finances. However, the fiscal deficit surpassed the 3% of GDP mark in 2008, and from that point onward increased markedly every year, reaching a remarkable 31% of GDP in 2017. The initial fiscal imbalance in 2008-2010 coincided with a sharp decline in oil prices in the global market place. However, when oil prices recovered in 2011, Venezuela made no attempt to adjust public finances. The decision was made to finance the deficit with money created by the central bank. In 2017 the deficit it reached almost 32% of GDP, even higher than the consolidated fiscal deficits for Chile in the last year of the Allende administration.

- *Money supply growth*: The data in these tables show a clear connection between the eruption of very large fiscal deficits and a jump in the rate of growth of the money supply. This, of course, reflects the fact that in every one of these cases the central bank financed the expansion of public expenditures through the purchase of government debt.

This was a deliberate component of these populist economic programs. This is illustrated by the following quote from García (1972, p. 102) one of the economists behind President Salvador Allende's economic program in Chile: "[the policy] was based on the simultaneous control of prices, wage increases, and increase in the public sector deficit…" He then added (p. 104): "monetary and credit policy provided the financing for fiscal expansion and the deficit…"[35] In Venezuela, the chairman of the Finance Committee of the National Assembly declared in 2010 that the Central Bank's role was to finance the government. "[I]t should support the development and social program approved [by the government]."[36] It is, precisely this close relationship between fiscal deficits and money creation what makes these episodes particularly germane to the debate on the merits and prospects of Modern Monetary Theory.

- *Inflation*: The data in these tables show that inflation was, eventually, extremely high in the four episodes. In Chile it surpassed 500% in 1973; in Peru, it reached hyperinflation levels – it exceeded 7,000% in 1990 –, and in Venezuela it surpassed 1,000% in 2017. The IMF expects inflation in Venezuela to reach the one million percent annual mark in 2019! For Argentina, there are two series: "official" and "adjusted." The latter was calculated by independent economists, and it is generally deemed to capture the evolution of prices more accurately. Both indexes show that inflation was significantly below Chile, Peru and Venezuela, but still a very high 41% in 2016.[37] As noted above, very high inflation feedbacks into the fiscal deficit through the Tanzi-Olivera effect. When inflation is very high, indexation tends to become generalized, and wages are adjusted at increasingly shorter intervals. This means that the government wage bill – which in all of these countries was very substantial – increased rapidly, while taxes were assessed and paid based on lagged (and much lower) prices. In all of these cases a collapse in the demand for domestic money (or an increase in velocity) contributed significantly to the explosion of inflation. In Chile, for example, velocity in 1973, at the end of the Allende government, was 24 "times" per year, which was two times higher than the historical average of 12 times.[38]

[35] The original is in Spanish. This is my own translation.

[36] America Economía, "The Central bank of Venezuela can finance the government." March 25, 2010. https://www.americaeconomia.com/politica-sociedad/politica/banco-central-de-venezuela-podria-financiar-al-gobierno

[37] In all of these cases official inflation underestimated "true" inflation. As the experiments moved forward and prices were controlled, black markets for certain goods developed. Official statistics are based on controlled prices, and not on market prices. Starting in 2007 the IMF stated that official price indexes in Argentina did not reflect inflation pressures in a reliable manner.

[38] These numbers refer to the number of times the stock of money turns over every year. An alternative way of looking at this problem is to calculate what fraction of nominal GDP is held in the form of domestic money. This, of

One of the most serious weaknesses of MMT is that it ignores the role played by the demand for money in macroeconomic outcomes. Economists have known for a long time that, as Patinkin (1965) masterfully emphasized, what matters is the excess supply (demand) in different markets. In his MMT *Primer*, Wray (2015, p. 254), declares that he is surprised by the notion that during a hyperinflation economic agents reduce their holdings of domestic money to a minimum. The absence of a prominent role the demand for money in the theoretical construct of MMT is, indeed, surprising. In Chapter 13 of the General Theory Keynes explains that people hold money for three motives: transactions-motive, precautionary-motive, and speculative-motives (Keynes 1936, p.168). He further argues that the demand for money (or liquidity preference) is a function of the rate of interest He explicitly writes $M = L(r)$. Economists have known, since at least Irving Fisher, that higher inflation results in higher r. Thus, a rapid increase in inflation will generate a greater excess supply for money, which will be mirrored by an excess demand for goods. MMTers believe that because taxes have to be paid in domestic currency the demand for local money cannot decline precipitously. The experiences of the 3 countries discussed here show that this is not the case. Indeed, and as a large number of economists have pointed out throughout history, when the value of the local currency erodes quickly, holdings of it are reduced to a minimum.

- *External balance*: The data in these tables show that current account deficits were not very large. In fact, in Venezuela there are surpluses until 2014. This absence of major external imbalances was due to a combination of factors, including the high price of exports in Venezuela during most of the episodes, and the difficulty, in the three cases, to find international sources of financing. One of the realities of most populist regimes is that capital flows reverse soon after investors realize that the policy stance is inconsistent.[39] Once the country runs out of international reserves its currency depreciates at an increasingly rapid pace. In addition, in turn, is passed through to prices making the inflationary problem more acute. This external constraint, which is particularly important for countries with nonconvertible currencies, is either ignored or minimized by MMT supporters. Wray (2015, p. 286), for example, writes that a country with its own nonconvertible currency "In terms of its own currency. It cannot be forced into involuntary default on its obligations denominated in its own currency. It can 'afford' to buy anything for sale that it's priced in its own currency. It might be able to buy things

course, corresponds to "Cambridge's k." When inflation is very high, this ratio collapses. For the data on Chile, see, Diaz et al (2010).

[39] On reversals of capital flows and crises (including populist crises) and the imposition of controls, see, for example, Cowan, De Gregorio, Micco and Neilson (2005), and Edwards (2004).

for sale in foreign currency by offering up its own currency in exchange – but that is not certain."

The data presented above show, the duration of the four episodes is different. Chile's Unidad Popular government lasted only 3 years. On September 11, 1973, president Salvador Allende was overthrown by a violent coup led by General Augusto Pinochet. The Peruvian experiment lasted 5 years; and in Venezuela it is still going on after two decades. There are political and economic reasons for these disparities. The most important economic factor is the external environment and export prices. The Allende government was affected by a sharp decline in the price of copper. During the Peruvian experiment, the international price of fishmeal, Peru's main export, fell from USD 1,024 per metric ton in the third quarter of 1983, to USD 614 per metric ton in the first quarter in 1989, a decline of 40%. Chile and Peru contrast markedly with the case of Venezuela. Between January 2003 and July 2012, international prices for soybeans, one of Argentina's main exports, increased from USD 208 per metric ton to USD 612 per metric ton. The price of crude oil, Venezuela's main export (Argentina is also an oil exporter), jumped from USD 20 per barrel in 2002 to USD 130 in 2008.

From a political point of view there are two main reasons behind the longer duration of more recent episodes. First, since the 1990s new constitutions approved in a number of countries – Colombia, Venezuela, Ecuador, Bolivia and Nicaragua – have made it is easier for the head of state to be reelected for multiple periods in office.[40] Second, in some of these experiments – most notably in Venezuela and Nicaragua – the political regime became increasingly authoritarian, and resorted to repressive tactics in order to suppress political dissent. Human rights organizations, such as Amnesty International, decried these practices.[41]

3.4 Real wages and exchange rates

An important question is what happened to real wages during these episodes. The answer is summarized in Table 5. In Chile, Peru and Venezuela there were steep declines. In Chile, average real wages fell by 39% between 1970 and 1973. In Peru real wages went down by 41% between 1985 and 1989. In Venezuela real wages declined 21% between 1999 and 2013; more recent reliable data are not available, but given the hyperinflation and generalized black markets

[40] On neo populist constitutions in Venezuela, Ecuador and Bolivia, see Edwards (2010).

[41] In its 2017/2018 report of human rights Amnesty International states: "In Venezuela, hundreds of people were arbitrarily detained and many more suffered the consequences of excessive and abusive force used by security forces in response to widespread public protests against rising inflation and shortages of food and medical supplies." Repressive policies were also implemented by Nicaragua's Daniel Ortega after 2017.

for almost every item, including food and medicines, most experts have argued that there has been further precipitous deterioration.[42]

In all of these cases there were also very severe currency devaluations. In Chile, for example, the peso lost 93% of its value in 1973 alone, and the price of the foreign exchange increased at a three digit pace until 1977. In Peru the price of foreign currency jumped by more than 8000% in 1989-1990. In 1991, there was a need to introduce a new currency, with fewer zeros. In Argentina the price of foreign exchange went from approximately 3 pesos per dollar in the period 2003, to over 20 pesos per dollar in 2016. In Venezuela the loss of value of the Bolivar has been absolute, and the government has tried to introduce a new crypto currency that would replace it. In all cases currency depreciation helped fuel inflation by putting upward pressure on the price of tradables. Interestingly, this regularity of Latin American experiments is not considered as a serious problem by MMTers. In their writings MMT theorists mostly ignore issues related to "pass through," a question that has been at the forefront of studies on macroeconomic policy and inflation in open economies for many decades.

4. Concluding remarks

A full assessment of the weaknesses of MMT is beyond the scope of this paper. However, the fact that, as documented in Table 1, most of its policy recommendations are similar to those of Latin American populists, should be a cause for serious concern to any observer of the global economy. As pointed out above, the easiest way to think conceptually about MMT is that it suggests policies that simultaneously shift to the right the IS and the LM curves. Of course, that is a possibility that every undergraduate student of macroeconomics has, at one point or another, contemplate as a theoretical possibility. Although that policy mix – expansive fiscal *and* monetary policies – may seem attractive to the novice, it is full of dangers that have been identified through the years by successive scholars. Such policies are not only likely to generate inflationary pressures once aggregate demand exceeds supply constraints, but they are likely to generate higher interest rates due to hikes in the risk premium, currency depreciation which will be passed through to prices, and portfolio relocation, resulting in a drastic decline in the demand for domestic money. The fact that, by law, taxes have to be paid by local currency – a point emphasized time and again by MMT supporters, on the basis of work done by German economist G.F. Knapp in 1905 – does not mean that the demand for local currency is insensitive to rapid losses in value due to inflation and exchange rate depreciation. Indeed, as the histories of

[42] The data for Chile are from Larrain and Meller (1991), and refer to the average for blue collar and white collar workers. The figures for Peru are from Dornbusch and Edwards (1990). For Venezuela, the data are from the U.N. Economic Commission on Latin America.

the countries analyzed in this paper show, once inflation reaches a certain threshold there is usually a rapid collapse in the demand for cash and nominal deposits.

Some may argue that I deliberately picked the worst possible cases in Latin America to illustrate the shortcomings of MMT; episodes where macroeconomic excesses were the order of the day. However, this is not so. As is documented in the volume by Dornbusch and Edwards (1991), similar experiments in Argentina, Bolivia, Ecuador, Mexico, Nicaragua, and Uruguay led to very similar results: Runaway inflation, currency depreciation, income collapse, and lower wages. More recently, similar policies have been tried in Argentina (again) and in Ecuador; the patter discussed here was, not surprisingly, present (Edwards, 2019). Experience with these type of policies outside of Latin America, in places such as Turkey, Israel, and France during the Mitterrand administration, also ended up badly.

A short, and partial list of weaknesses, and limitations of MMT would include the following:

- There is no serious attempt to integrate different markets and sectors into a general equilibrium perspective in the tradition of Patinkin (1965). More specifically, MMT fails to recognize that what really matters are *excess demands* or *excess supplies* in specific markets, which spill over (with the opposite sign) in to the rest of the economy. Indeed, and as pointed out above, it is important to realize that situations of sizable excess supplies of money, which are translated into excess demands for bonds and goods, may arise because of the collapse of the demand for money.

- MMT ignores the the role of expectations. As is well established by empirical research, expected inflation is translated into higher interest rate through the so-called Fisher effect. In addition, MMT ignores the role of expectations of currency depreciation and of credit events. MMT supporters repeatedly make the point that countries with a currency of their own don't ever have to default on their debts, as long as these are denominated in local currency. What this perspective ignores is that hyperinflation – the outcome of many MMT-type policies –, is a form of default. In Argentina, for example, there is even a term used for this mechanism for not paying the sovereign debt: "liquefying the debt."

- MMT, essentially, offers a closed economy w of the world. This is the case even though a number of MMT authors have written about exchange rate regimes and currency depreciation. It was argued above that a straightforward way of interpreting MMT is as a policy mix that simultaneously shifts to the right the IS and LM curves. Of course, open economy models of that vintage include, since at least the work of Robert Mundell, a third schedule often called the FF curve, which captures the combination of interest rates and income compatible with external balance. Every time a domestic policy measure

moves the equilibrium off the FF curve there will be a currency depreciation or appreciation to reestablish external equilibrium. A well-established empirical fact in international economics is that currency depreciation tends to be passed through onto prices. The extent of this transmission is an empirical question, and varies from country to country.

- MMT does not delve into the intricacies of modern financial markets. Among other things there is no inkling of portfolio decisions by investors and households, and how those tend to affect the way in which policies interact with the key economic variables. More specifically, there is no role for risk premium in these models. In MMT interest rates are determined in the simplest possible way by the central bank. There is no persuasive theory of the term structure of interest rates, or of the transmission mechanism of monetary policy. There is no consideration for the fact that the demand for sovereign debt may shift as a result of changes in expectations.

- MMT ignores the strategic interaction of different economic agents and institutions in a modern economy. No games theoretical considerations are included in the models. There is no discussion about credibility, or lack there off. In MMT models there is no reason why a central bank may want to be independent of political forces. However, the evidence stemming from Latin America indicates that as soon as central bank independence is weakened, and the central bank begins to work for the government, inflation expectations takeoff, as does information proper.

- MMT believes that supply constraints are soft. Increases in aggregate demand will usually, and until certain level, be accommodated by increases in output. In addition, MMT believes that large current account deficits are beneficial, since the rest of the world is willing to provide real resources in exchange for IOUs. At the core of these beliefs is the notion that economic authorities can "find tune" macroeconomic policy. That is, it is possible for the central bank to finance large increases in government expenditure and still keep "things under control." If there is a limited tort threshold beyond which it is advisable to increase aggregate demand, policymakers will recognize it, and will stop just short of it. The experiences of the Latin American countries discussed in this paper (and of other cases) indicates that that type of fine-tuning is extremely difficult, and that once politicians capture the central bank, they will continue to use its money creation authority well past that threshold.

The historical episodes presented in this paper provide a clear cautionary tale for MMT enthusiasts. Neil Irwin asked to see some evidence on how MMT-type policies worked in small countries. The stories presented here show that in a variety of Latin American countries, at very different points in time – the episodes span from 1970 to 2019 -- things did not turnout as policy makers who followed MMT-type policies had promised.

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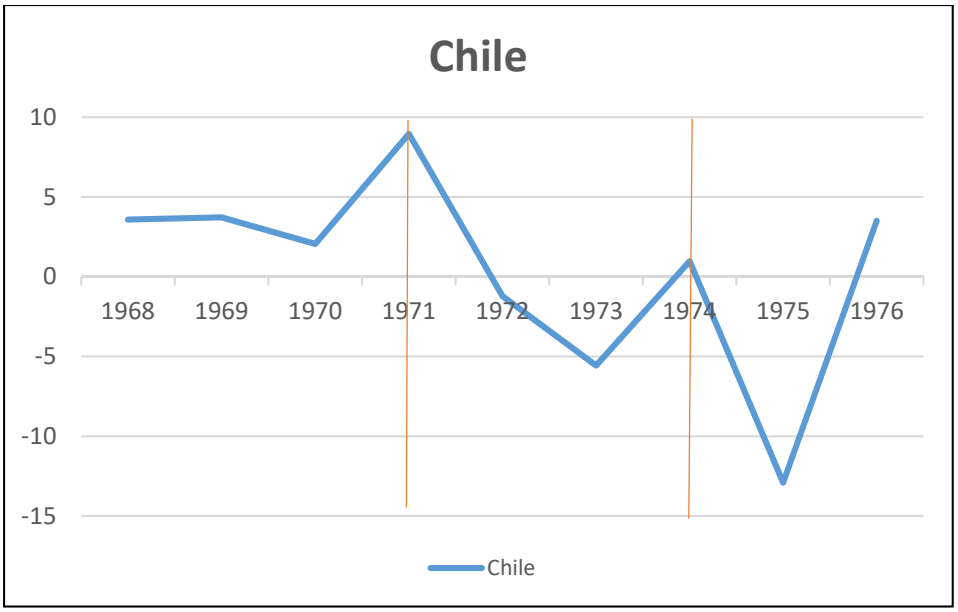

FIGURE 1A: Real GDP Growth, Chile, 1968-1976 (Source: Banco Central de Chile)

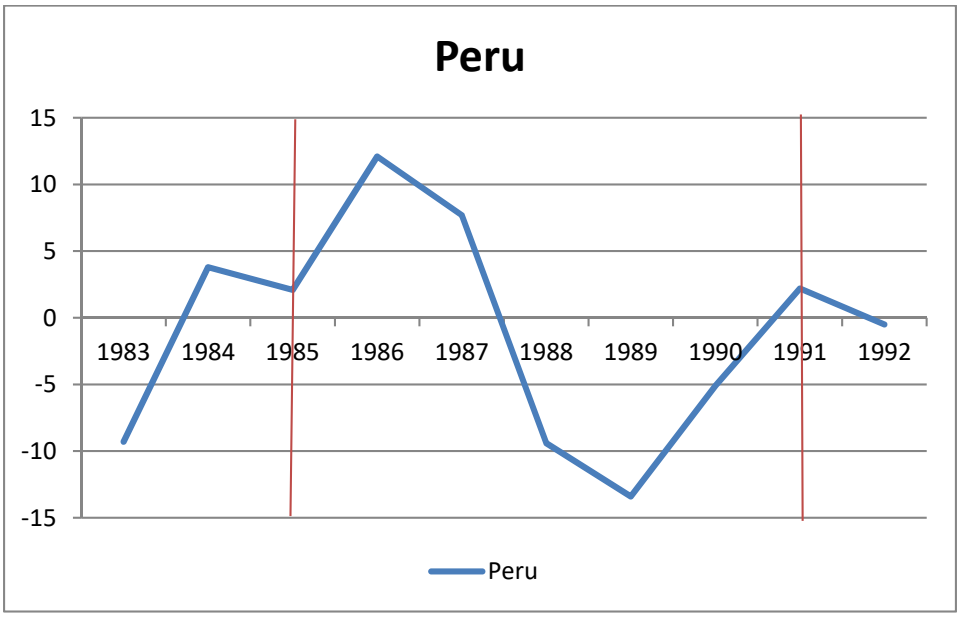

FIGURE 1B: Real GDP Growth, Peru, 1983-1992 (Source: IMF)

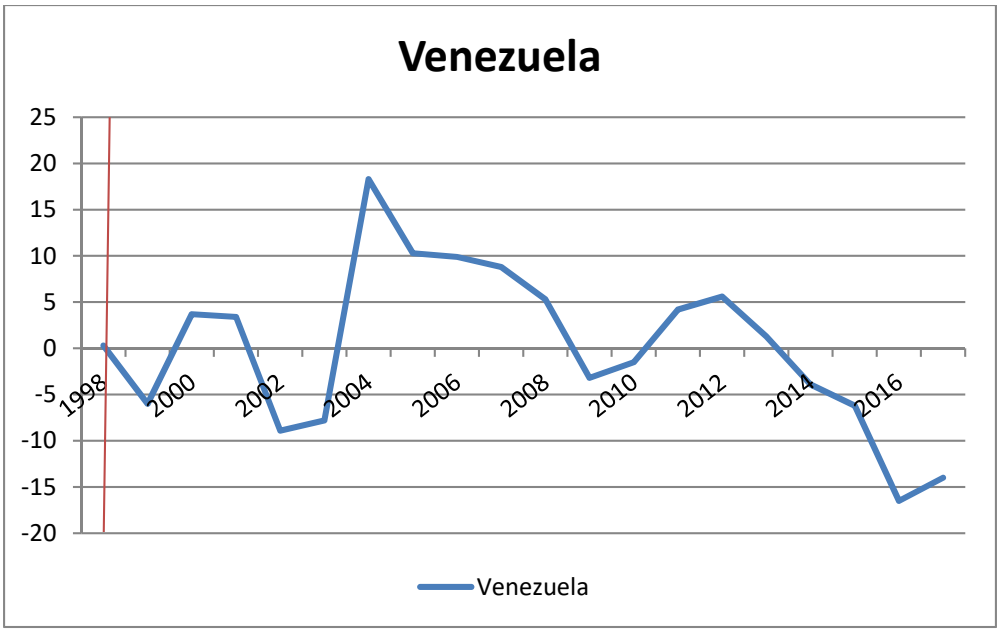

FIGURE 1C: Real GDP Growth, Venezuela, 1998-2017 (Source: IMF)

TABLE 1: Latin American Populism and MMT: A Schematic Comparison*

	Latin American Populism	Modern Monetary Theory
Monetary policy/ Central bank	- Monetary policy should promote growth by providing credit to government and state owned enterprises (SOE). - Central bank (CB) should not be independent. CB has a triple mandate: Stability, employment, and social development. - There should be a wide network of state owned bank that finance infrastructure projects and SOEs.	- Central bank should finance government by crediting the Treasury's account at CB. - Infrastructure projects, and high public sector wages financed by CB. -Central bank responds to political power; not independent. Helps finance "jobs guarantee" program - Monetary policy should be "functional," in the sense that it should help achieve full employment.
Fiscal policy/public sector debt	- Deficit is not inflationary; most of the time it reduces prices' pressures by allowing economies of scale. - Government does not have hard budget constraint; higher expenditures can be financed by CB. Public debt limits are artificial; debt can always be paid by CB. - Sovereign countries may be forced to default on their foreign currency debt. This, however, is much less costly than what orthodox economists believe. Many times sovereign debt is illegitimate, and it is ethical to default on it.	- Government does not have hard constraint; ; higher expenditures can be financed by central bank. - Public debt limits are artificial; debt can always be paid with money creation. - No discernible, or strong, connection between public sector debt and interest rates (no default risk premium). -Sovereign countries never default on their debt. They can always pay by printing more domestic money.
Interest rates	- Interest rates should be determined by government (CB) to encourage investment. Negative real interest rates are not a problem; in fact, they are encouraged. -Interest rates should be different for different sectors.	- The central bank has the ability to determine interest rates; these should be low, or close to the natural rate, which is zero. - No feedback from inflation to interest rate (no Fisher equation).
Demand for domestic money/Velocity	- Populist do not acknowledge that the demand for the domestic currency can collapse if inflation is very high. No role for velocity increases.	- There is no recognition that if inflation increases, the velocity of money will go up, putting additional pressure on prices.
Inflation/price controls	- Inflation harms wage earners and the lower classes. Needs to be controlled.	- Low inflation it is one of the most important goals of policy

	- Inflation is usually the result of structural bottlenecks, and monopolistic practices. There is only a very tenuous relationship between monetary policy and inflation. - Administrative price controls play a very important role in maintaining inflation low.	- Controls may be used if inflation becomes too high. - If there is an inflation outburst, it should be dealt with fiscal policy. - There is no concept such as the "inflation tax."
Exchange rates/pass through	- Foreign exchange is scarce and needs to be rationed. - The allocation of foreign exchange should be done by government. - A crawling or managed exchange rate regime is preferred. - There is no strict relationship between domestic inflation and the rate of depreciation.	- MMT is most effective in countries that do not have a fixed rate. - No direct connection between domestic monetary expansion and currency depreciation - No central role for "pass through" from exchange rate to domestic inflation - Mostly a closed economy model; no concerns for the issues raised, among others, by Robert Mundell.
Wages	- Higher wages help the economy by invigorating aggregate demand. - One of the first policy measures of the new progressive government is to raise minimum wages, and public sector salaries - There doesn't need to be a close connection between productivity and wages	- A central goal of policy should be to provide a living wage for everyone who wants to work. - The "jobs guarantee" program is the central policy concern of MMT.
Supply constraints	- Capitalist economies are characterized by ample room for expanding output. - Capacity utilization should be greatly increased through expensive aggregate demand policies financed by the central bank.	- What matters is "resources". As long as there are resources available, there is no reason to worry about supply constraints.
State owned enterprises	- SOE play a very important role in the development strategy. - Natural resource multinationals are usually nationalized.	- Play no role in MMT's economic policy program.

* Information extracted from writings discussed in body of the paper.

TABLE 2

Chile, 1968-1976
Macroeconomic Indicators

	Public Sector Balance as % GDP	Consoli-dated Public Sector Balance as % GDP	Rate of growth of money Supply (Base) (%)	Inflation % Per Annum (Average)	Current account balance as % GDP	Real GDP Growth % per year
1968	-2.4	NA	36.80	27.94	-2.16	3.60
1969	-1.5	NA	43.61	29.34	-0.08	3.71
1970	-2.9	-6.69	66.15	34.93	-1.27	2.05
1971*	-11.2	-15.28	135.88	22.13	-2.36	8.96
1972*	-13.5	-24.53	178.25	163.43	-4.31	-1.21
1973*	-24.6	-30.40	365.03	508.05	-8.81	-5.57
1974	-10.5	NA	319.58	375.88	-3.71	0.97
1975	-2.6	NA	293.73	340.70	-0.01	-12.91
1976	-2.3	NA	271.56	174.32	0.002	3.52

Source: Edwards and Edwards (1991); Banco Central de Chile; Larrain and Meller (1991).

TABLE 3

Peru, 1983-1992
Macroeconomic Indicators

	Public Sector Balance as % GDP	Rate of growth of money Supply (Base) (%)	Inflation % Per Annum (Average)	Current account balance as % GDP	Real GDP Growth % per year
1983	-11.6	115.1	111.1	-6.8	-9.3
1984	-7.9	142.5	110.2	-1.4	3.8
1985*	-3.7	214.9	163.4	0.3	2.1
1986*	-7.8	39.4	77.9	-5.4	12.1
1987*	-10.1	110.5	85.8	-4.3	7.7
1988*	-11.5	568.2	667	-5.4	-9.4
1989*	-11.3	1,436.6	3398.3	-0.5	-13.4
1990*	-8.9	7,782.5	7481.7	-5.1	-5.1
1991	-2.9	162.2	409.5	-4.5	2.2
1992	-4.0	95.8	73.5	-5.4	-0.5

Source: International Monetary Fund, except for fiscal deficit which comes from Martinelli and Vega (2018).

TABLE 4

Venezuela, 1998-2017
Macroeconomic Indicators

	Public Sector Balance as % GDP	Rate of growth of money supply (Base) (%)	Inflation % Per Annum (Average)	Current account balance as % GDP	Real GDP Growth % per year
1998*	-4.5	18.3	35.8	-4.8	0.3
1999*	0.7	32.9	23.6	2.2	-6
2000*	4.4	14.8	16.2	10.1	3.7
2001*	-4.6	12.0	12.5	1.6	3.4
2002*	-1.5	19.5	22.4	8	-8.9
2003*	0.2	24.1	31.1	14.1	-7.8
2004*	2.5	59.3	21.7	13.8	18.3
2005*	4.1	31.8	16	17.8	10.3
2006*	-1.6	36.6	13.7	14.9	9.9
2007*	-2.8	89.8	18.7	6.1	8.8
2008*	-3.5	48.0	31.4	10.8	5.3
2009*	-8.7	27.9	26	0.2	-3.2
2010*	-9.2	24.5	28.2	1.9	-1.5
2011*	-10.6	23.0	26.1	4.9	4.2
2012*	-14.6	50.1	21.1	0.8	5.6
2013*	-14.1	43.0	43.5	2	1.3
2014*	-16.5	--	57.3	2.3	-3.9
2015*	-17.6	--	111.8	-6.6	-6.2
2016*	-17.8	--	254.4	-1.6	-16.5
2017 *	-31.8		1087.5	2	-14.0

Source: International Monetary Fund

TABLE 5

Evolution of Real Wages in Latin American Populist Episodes

	Index of real wages at beginning of populist episode	Index of real wages at the end of populist episode
Chile (1970-1973)	100	61
Peru (1985-1990)	100	59
Venezuela (1998-)*	100	79*

Source: See text.

*The data for Venezuela are for 2013. More recent reliable data are not available.