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Challenges to Disinflation: The Brazilian Experience

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Challenges to Disinflation: the Brazilian Experience*

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Abstract

We review two previous bouts of high inflation and disinflation since Brazil adopted inflation targeting. In both episodes, fiscal sustainability concerns were present and inflation expectations became unanchored despite substantial monetary policy tightening. Disinflation and the reanchoring of expectations took time and proved costly, as both episodes entailed a recession. They required tight monetary policy combined with critical shifts toward structural economic reforms and sound fiscal policy. The ongoing episode features the same fiscal concerns and unanchored inflation expectations. This suggests the path ahead for disinflation will be challenging, unless policies change direction. We also speculate whether the Brazilian experience can provide insights for other countries.

JEL codes: E31, E52, E63, E65

Keywords: inflation, inflation expectations, unanchoring, monetary policy, fiscal policy, COVID-19

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1 Introduction

In response to the COVID-19 pandemic, governments around the world pursued unprecedented public health, fiscal and monetary policies. To varying degrees, such policies contributed to supply and demand imbalances that led to a sharp increase in inflation worldwide. While the rise of inflation was initially concentrated in a few sectors, such as food and energy, various measures of core inflation show it has become more widespread over time. The war in Ukraine was an additional inflationary shock, with particularly acute effects in Europe.

The unique nature of the pandemic and associated policy responses made it challenging to anticipate how economies would behave. Sectoral demand shifts, supply disruptions, and the dynamics of social distancing or lockdown and subsequent reopening made it particularly hard to anticipate inflation developments. While a few commentators got it more right than wrong, it is fair to say most market participants and policymakers failed to foresee how high and persistent inflation would become.

Now that many central banks might have done the lion's share of policy tightening, economies show some signs of slowing and inflation might have peaked, attention has turned to the awaited disinflation process. How fast is it going to be? How costly will it be in terms of output? At the time of writing, financial markets in the U.S. seem to reflect a benign view, whereby inflation will exhibit low persistence and fall with little cost in terms of foregone output – *i.e.*, a low sacrifice ratio. How likely is that outcome? The academic literature suggests such a benign, “soft landing” scenario is not very likely, although by no means impossible.¹

The fact that the U.S. and other advanced economies have not experienced such high levels of inflation in decades, however, adds to the difficulties in drawing conclusions from historical experience. Especially to the point, most available estimates of the costs of disinflation in advanced economies pertain to periods prior to the adoption of modern inflation targeting regimes currently in place in many countries.

In contrast, some emerging economies have experienced more frequent episodes with comparably high levels of inflation, including episodes since they adopted inflation targeting. For those countries at least, perhaps those experiences can offer some insight about current dis-

¹Friedman and Schwartz (1963) and Romer and Romer (1989) provide a historical account of disinflation episodes in the United States and output costs of contractionary monetary policies. In an effort to quantify the output costs of disinflation, Ball (1991) discusses the roles of price rigidity and credibility problems, while Ball (1994) finds the sacrifice ratio is decreasing in the speed of disinflation and in the degree of wage flexibility. Sargent (1982, 1983) discuss the role of policy credibility in determining the costs of disinflation. Tetlow (2022) relies on dynamic general equilibrium models to provide a range of estimates of the costs of disinflation. More recently, Cecchetti et al. (2023) rely on U.S. and international evidence to conclude that sizable central-bank-induced disinflation episodes are, more frequently than not, associated with economic downturns. Finally, Blinder (2023) offers a more optimistic view on the Fed's ability to achieve a soft landing.

inflation challenges. Certainly subject to many additional caveats, they can complement the (also imperfect) lessons about disinflation in advanced economies that one can draw from the academic literature.

In this paper, we explore the case of Brazil, which adopted inflation targeting in 1999, after the collapse of its managed exchange rate regime. The current bout of high inflation is the third episode since then in which inflation reached levels significantly above target, and the Banco Central do Brasil (BCB) had to tighten policy significantly to reign in inflation.

The two previous episodes have a few features in common. In both cases, heightened fiscal concerns were present, the Brazilian currency depreciated significantly, inflation increased way above target, inflation expectations became or were already unanchored, and the BCB had to tighten policy significantly.

The two episodes ended with a sizable, albeit costly, disinflation. Both reversals involved many ingredients. Crucially, the course of fiscal policy was a positive surprise, the currency reversed its depreciation, and inflation expectations “reanchored.” Both episodes, however, produced a recession.

The current challenges for disinflation in Brazil feature the same credibility concerns regarding fiscal and monetary policies observed in the previous episodes. Analysts and market participants fear lack of fiscal discipline, and inflation expectations have become unanchored. These similarities strongly suggest a successful disinflation will require a change of direction in economic policies going forward.

The Brazilian experience may be informative of challenges faced by other emerging economies where fiscal sustainability is a concern, and where inflation expectations suggest monetary policy credibility is at stake. When it comes to advanced economies, analogies are much more imperfect. These countries have stronger fundamentals, much larger fiscal space, and a longer history of low and stable inflation and macroeconomic stability. Nevertheless, the rise of long-run inflation expectations in the U.S. in the aftermath of the Global Financial Crisis and the recent confidence scare in the U.K. suggest policy credibility may be challenged even in advanced economies.

The rest of the paper is organized as follows. Section 2 describes the adoption of the inflation targeting regime in Brazil and identifies three periods of high inflation and unanchoring of inflation expectations since then. Section 3 provides an account of the first two high-inflation episodes. In Section 4 we describe the current bout of high inflation and highlight lessons from the two previous episodes for current disinflationary efforts. Section 5 concludes.

2 The inflation targeting regime in Brazil

After a decade battling extremely high or hyperinflation, the Real Plan was successful in bringing down inflation in 1994.² At first, between 1994 and 1999, the country introduced a managed exchange rate regime that helped stabilize inflation. Fiscal policy remained loose, however, which eventually led to a confidence crisis by the end of 1998. After abandoning the currency peg in January 1999, Brazil transitioned to inflation targeting with a floating exchange rate.

Under this framework, the BCB sets its main policy rate (Selic) aiming to maintain annual consumer price inflation (IPCA) on target. A tolerance band allows the BCB to accommodate shocks. The target and tolerance band are set three years in advance by the National Monetary Council, which is currently composed of the Minister of Finance, the Minister of Planning, and the BCB Governor.

After an initial period with declining targets that were revised twice in response to the first bout of high inflation, the target remained at 4.5% between 2005 and 2018. Since 2019, the target was reduced by a quarter of a percentage point each year, until reaching 3%, currently in place for 2024 and 2025. Figure 1 highlights three instances in which inflation rose significantly above the tolerance band – around 2002, 2015, and more recently, since 2021.

Of course, a proper assessment of an inflation targeting regime and the costs associated with bringing inflation back to target must take into account the dynamics of inflation expectations. When expectations are well anchored, high inflation episodes are more easily reversed as agents continue to make their economic decisions assuming inflation will fall back to “normal” levels (*i.e.*, around target). In contrast, when expectations are unanchored, agents anticipate inflationary shocks will propagate and change their behavior accordingly.

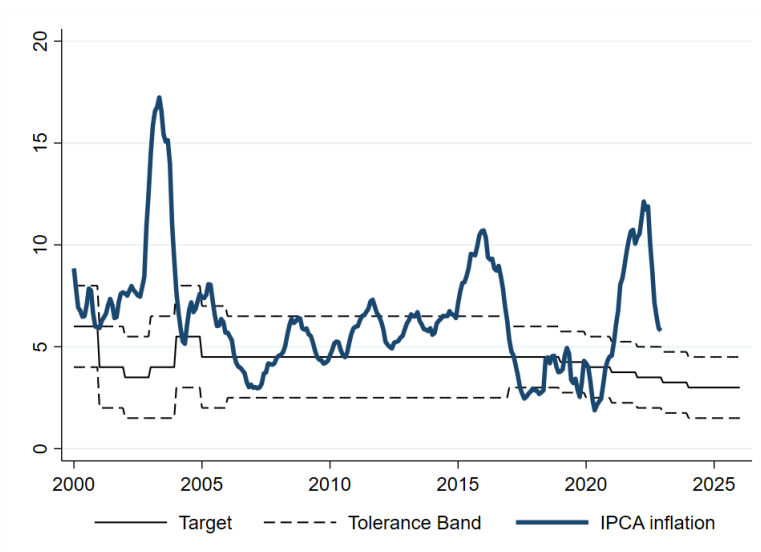
Therefore, before turning to an account of the first two high-inflation episodes, we discuss the dynamics of inflation expectations and assess their degree of anchoring since Brazil adopted inflation targeting.

2.1 Inflation expectations and the degree of anchoring

To closely follow market participants’ views on economic conditions, in 2002 the BCB started a survey of professional forecasters, known as the Focus Survey. Currently, it has around 140 participants, from which 100 provide forecasts frequently. The survey covers a range of macroeconomic variables, such as inflation, the Selic policy rate, the exchange rate, various fiscal variables, economic activity and balance of payments. Participants can update their forecasts

²For a detailed account of the Real Plan, see [Bacha \(2003\)](#).

Figure 1: Inflation targeting regime in Brazil



Notes: The figure reports IPCA inflation, the target and tolerance band. Source: Banco Central do Brasil.

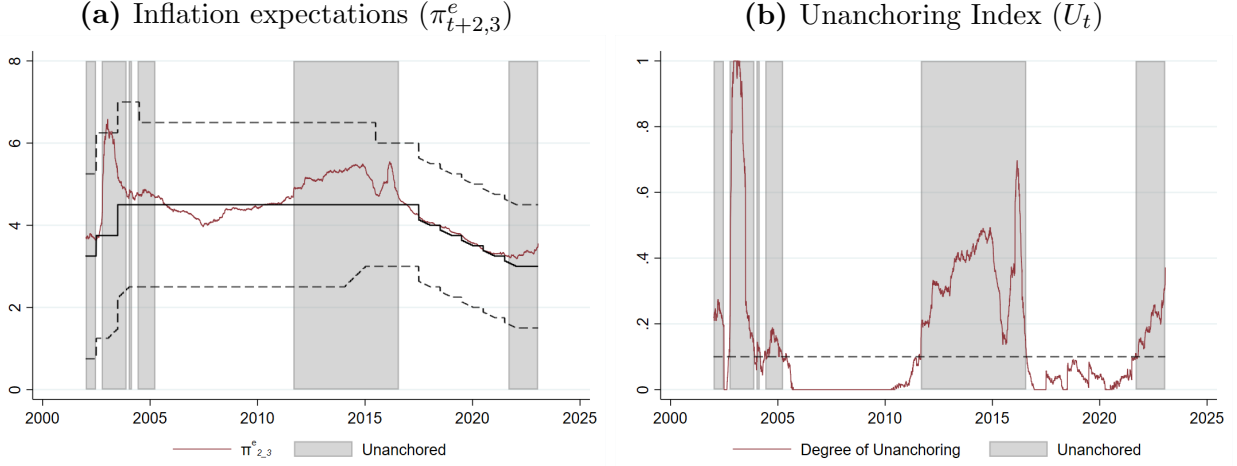
for various horizons daily if they so wish. In order to provide incentives for participants to report frequently and carefully, the BCB runs a few forecasting contests and publishes the five most accurate forecasters. The BCB also releases aggregate survey statistics, such as means, medians and dispersion measures.

Abib et al. (2022) use the Focus Survey to construct a measure of the degree of expectations unanchoring in Brazil, based on the credibility index introduced by Cecchetti and Krause (2002). They take deviations from target of 12-month inflation expectations between two and three years ahead and convert them into an index with values between zero and unit, which measures the degree of expectations unanchoring. Since the BCB considers its relevant monetary policy horizon to be around 18 months ahead, the chosen horizon is arguably long enough to reflect policy credibility considerations rather than the delayed effects of ongoing shocks.³ The authors validate this measure of the degree of unanchoring by looking at other measures the literature has proposed, such as the cross-sectional dispersion of expectations and variation in the extent of passthrough of short- to long-run inflation expectations.⁴ While their sample ends in 2020, we update their index and our analysis uses data from January 2, 2002 to January 20, 2023.

³Results are essentially unchanged if expectations between three and four years ahead are used instead.

⁴In addition, using Brazilian PPI micro price data, they find exchange rate passthrough into prices increases substantially when expectations are unanchored.

Figure 2: Inflation expectations and the unanchoring index



Notes: Panel (a) reports expectations for 12-month inflation between two and three years ahead, calculated as in [Abib et al. \(2022\)](#). Panel (b) reports the daily unanchoring index U_t , as described in equation (1). Shaded areas correspond to dates in which $U_t > 0.1$. Source: Banco Central do Brasil and authors' calculations.

The degree of unanchoring of inflation expectations, U_t , is given by:

$$U_t = \begin{cases} 1 & \text{if } \pi_{t+2,3}^e > \pi_{t+2,3}^{max} \\ \frac{\pi_{t+2,3}^e - \pi_{t+2,3}^*}{\pi_{t+2,3}^{max} - \pi_{t+2,3}^*} & \text{if } \pi_{t+2,3}^* \leq \pi_{t+2,3}^e \leq \pi_{t+2,3}^{max} \\ 0 & \text{if } \pi_{t+2,3}^e < \pi_{t+2,3}^*, \end{cases} \quad (1)$$

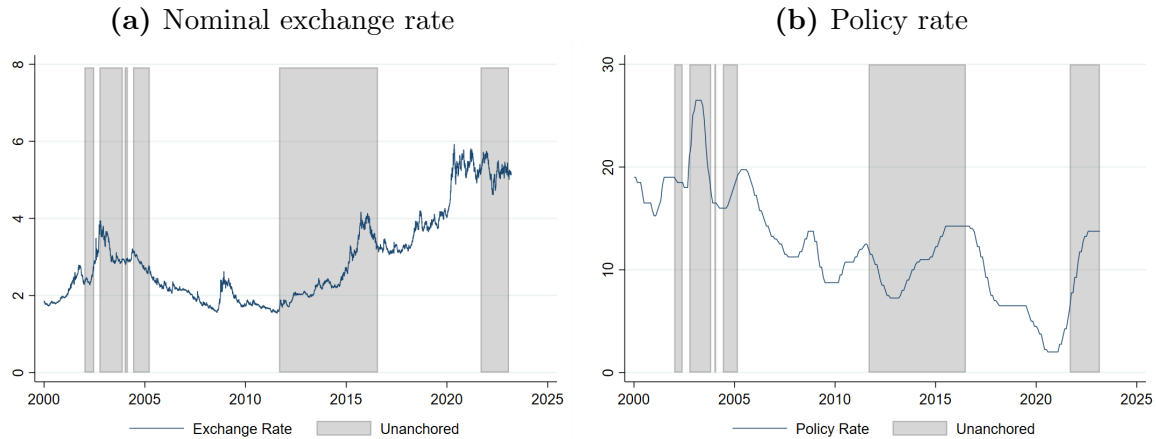
where $\pi_{t+2,3}^e$ is the cross-sectional mean of 12-month inflation expectations between two and three years ahead, $\pi_{t+2,3}^*$ is the corresponding inflation target, and $\pi_{t+2,3}^{max}$ is the upper limit of the tolerance band. Inflation expectations are deemed unanchored whenever $U_t > 0.1$.

Panel (a) in Figure 2 shows inflation expectations ($\pi_{t+2,3}^e$), target and tolerance band since 2002. Panel (b) in Figure 2 shows the measure of unanchoring. It points to three clear instances of unanchoring of expectations, which we indicate with shades; in the early 2000s, around the mid-2010s and, more recently, since 2021.

3 Two previous bouts of inflation and disinflation

In this section we review two bouts of inflation and disinflation Brazil experienced prior to the pandemic. For brevity, we focus on domestic developments only, emphasizing aspects related to fiscal and monetary policies. We acknowledge, however, that global and other domestic factors also played a role in both episodes.

Figure 3: Exchange rate and policy rate



Notes: Panel (a) shows monthly nominal exchange rate in Brazilian reais per U.S. dollar. Panel (b) reports the main policy rate (Selic) in percentage points per year. Shaded areas in panels (a) and (b) correspond to the unanchored periods as defined in Section 2.1. Sources: St. Louis Fed FRED and Banco Central do Brasil.

3.1 Episode 1 – 2002-2005

The first episode was associated with the first time Brazil’s current president, Luis Inácio Lula da Silva, known as Lula, won a presidential election, in 2002. Historically, Lula and the Workers’ Party – to which he has always been affiliated – had spoken frequently in favor of voluntarily defaulting on external debt and “auditing” domestic debt.

Needless to say, when Lula showed up ahead in the polls over the course of 2002, foreign and local investors dumped Brazilian assets, fearful that existing market-friendly economic policies would be overturned.⁵ The currency depreciated dramatically (panel (a) in Figure 3), inflation increased sharply (Figure 1), inflation expectations became unhinged (panels (a) and (b) in Figure 2) and the BCB had to tighten policy significantly (panel (b) in Figure 3).

In the first few months of 2002, the BCB had started an easing cycle, after keeping the policy rate constant for about half a year. Between April and September of that year, as concerns about the upcoming election increased, the currency depreciated continuously. Initially, inflation and expectations remained relatively stable. Shortly after Lula won the first election round on October 6 and advanced to a runoff vote to take place later in that month, inflation expectations jumped, inflation picked up, and the currency depreciated sharply.

The BCB responded by raising the policy rate by 300 basis points (bps) in an extraordinary meeting on October 14. In its following meetings, the BCB continued to raise the policy rate aggressively, but inflation readings and expectations continued to deteriorate. The concomitant

⁵Jensen and Schmith (2005) provide evidence volatility in the Brazilian stock market increased when election poll results favored Lula. Andrade and Kohlscheen (2010) show evidence foreign investors became relatively more pessimistic about the prospects for Brazilian risky assets around the 2002 presidential election.

increase of policy rates, inflation and expectations raised concerns about fiscal dominance. [Blanchard \(2004\)](#) argues Brazil flirted with a form of fiscal dominance during this period, whereby higher interest rates raised fears of default and led to a depreciation of the Brazilian currency and higher inflation.⁶

Toward the end of 2002, and only after the new government announced a market-friendly economic team (including a new BCB governor), the currency reversed its depreciation trend. In 2003, already under the new government, the BCB continued to increase its policy rate until February. It started a new easing cycle by June 2003, after inflation and inflation expectations had started to decline. The new government announced a series of reforms and fiscal consolidation policies, which included lifting primary surplus objectives ([Werneck, 2006](#)). The adoption of prudent fiscal policies helped calm markets ([IMF, 2007](#), [de Paiva Abreu and Werneck, 2005](#), and [Blustein, 2002](#)).⁷

The whole episode lasted for approximately three years. The BCB increased its policy rate by a total of 850 bps between July 2002 and February 2003. The economy experienced a brief recession in the first two quarters of 2003, when GDP fell by a total of 1.3%. It took until mid-2005 for inflation to return to within the tolerance band and for expectations to reanchor.

3.2 Episode 2 – 2015-2016

The second episode coincided with the beginning of President Dilma Rousseff’s second term, in 2015. Her first term was marked by unsustainable fiscal and quasi-fiscal policies that had been initiated during President Lula’s second term. In addition, an abrupt u-turn in monetary policy in 2011, which many commentators associated with political pressure on the BCB, led to unanchoring of inflation expectations ([Abib et al., 2022](#)).

Following the Global Financial Crisis (GFC), still during President Lula’s second term, Brazil implemented countercyclical fiscal policies to help alleviate the impact of the ensuing credit crunch. As a result, the country experienced only a mild recession and recovery resumed in the following year.

By mid-2012, however, despite the recovery, the government announced a new set of tax breaks and spending increases to further stimulate the economy. Moreover, the government continued to provide substantial quasi-fiscal stimuli, significantly increasing credit provision through state-owned and its main development bank (BNDES). This expansion was directly

⁶See [Loyo \(2005\)](#) for a discussion.

⁷While election years can increase the degree of uncertainty regarding future fiscal and monetary policies, historically these episodes have not necessarily led to unanchoring of expectations. [Figure 2](#) shows that during the 2006 and 2018 elections inflation expectations remained well anchored.

supported by transfers from the Treasury and off-budget measures (Matheson and Pereira, 2016). The government also introduced policies aimed at keeping energy and fuel prices artificially low. Despite the large fiscal and quasi-fiscal support, economic activity remained subdued (IMF, 2013). The fiscal and quasi-fiscal expansion resulted in a continuous worsening of the country’s fiscal position, eroding the government’s credibility (Bloomberg, 2016, Spilimbergo and Srinivasan, 2019).⁸

Regarding monetary policy, after lowering the policy rate in response to the 2008-2009 credit crunch, the BCB had started a tightening cycle in April 2010, as the economy was growing strongly and inflation edged higher. In the first half of 2011, already under a new governor, the BCB continued to raise rates, as inflation moved toward the top of the tolerance band. In its August 31 meeting, however, despite the readings on realized and expected inflation, the BCB surprised markets and cut the policy rate by 50 bps (Abib et al., 2022). The day after that decision, and in subsequent days, inflation expectations ($\pi_{t+2,3}^e$) rose significantly and became unanchored, as shown in panels (a) and (b) in Figure 2. The BCB doubled down with a sequence of rate cuts, deepening the deterioration of inflation expectations. It was only in April 2013 that the BCB reversed its path and started to raise rates again. By then, inflation had approached 7% and inflation expectations were 50 bps above target.

After being reelected at the end of 2014, President Rousseff started her second term with signs of a possible change in the direction of economic policy. She appointed a market-friendly Finance Minister, which hinted at a return to a more responsible fiscal policy. She also allowed a reversion of policies that had kept energy and fuel prices artificially low, which resulted in a sizable increase in inflation. Despite this increase, prospects of a return to appropriate macroeconomic policies – including responsible fiscal policy and a tighter monetary policy stance – led inflation expectations to improve meaningfully (panel (a) in Figure 2).

The change in fiscal policy, however, did not last. By the second half of 2015, inflation was way above target, expectations had worsened considerably and the Brazilian real kept depreciating – following a trend that had started in September 2014. After years of deteriorating fiscal position, the country lost its investment grade and was downgraded to “junk” status by the end of 2015 (IMF, 2014). Once again, fears of unsustainable fiscal policies amidst high inflation, unanchored inflation expectations and tight monetary policy raised the specter of fiscal dominance (*e.g.*, Pearson, 2016 and The Economist, 2016).

A political crisis also ensued and, as time passed, it became increasingly likely Congress would start a process to impeach President Rousseff for responsibility crimes related to fiscal

⁸Appendix A provides a brief account of Brazil’s structural fiscal problems since the late 1980s.

practices. The impeachment process started in May 2016 and then Vice-President Michel Temer took office. President Rousseff was formally impeached in August 2016 (IMF, 2016 and Bloomberg, 2016).⁹

The prospect of impeachment was associated with the possibility of yet another change in the direction of economic policies. In anticipation of that change, the Brazilian real appreciated and inflation expectations started to move back towards target. President Temer appointed a new economic team, including a new Finance Minister and a new BCB governor. The new team introduced an ambitious reform agenda and fiscal consolidation policies, which we detail in the next section. The BCB kept a tight monetary policy stance, which also contributed to reanchor inflation expectations and bring inflation back to target.

Overall, inflation expectations remained unanchored for five years (between September 2011 and August 2016). Inflation hovered around the top of the tolerance band for most of 2011-2014, and increased significantly above target in 2015, to reach 10.7%. Brazilian GDP contracted for 11 consecutive quarters, for a total drop of 8.1%. Once again, reanchoring and disinflating entailed substantial shifts in economic policy, including the pursuit of sound fiscal policy and significantly tight monetary policy.

4 The current disinflation challenge

4.1 Pre-pandemic context (2017-2019)

Between 2016 and the start of the pandemic, Brazil underwent a significant effort to address its chronic fiscal challenges through a series of economic reforms and fiscal consolidation measures.

One important reform was the introduction of a cap on public spending. With a few exceptions, the cap limited public spending to an amount that increased annually with past inflation.¹⁰ The introduction of such cap stabilized and reduced central government's primary spending (panel (a) in Appendix Figure A1). This change was mostly driven by a decline in real public sector compensation and spending items indexed to the minimum wage, and cuts to discretionary spending and public investment. Most importantly, the spending cap effectively led society to discuss the trade-offs of any additional public spending, most likely for the first time in the country's history.

Another important measure was the reform of the framework for provision of subsidized

⁹For an account of that period, see Cuevas et al. (2019).

¹⁰The legislation included a few exceptions to this rule. For example, the cap could be violated temporarily in case of calamities, such as a pandemic or war. Moreover, it established a minimum level of spending on education and public health, to prevent these items from being squeezed by other components.

and earmarked credit by public institutions. Prior to that reform, public banks and regional development funds used to provide large amounts of credit at rates that involved substantial subsidies and that were little sensitive to market rates – and hence to monetary policy.¹¹ The reform created a new set of rates that were linked to the yield curve of government bonds, and either eliminated or reduced the implied subsidies. The most emblematic case was the reform of the interest rate on the main funding sources of Brazil’s leading national development bank, BNDES.¹² The reform also changed earmarked credit for agriculture and for initiatives aimed at reducing regional inequalities.

Congress also approved a comprehensive pension reform, raising the retirement age and changing the profile of benefits after retirement (for details, see [OECD, 2021](#)). The reform implied significant savings on government spending in the following decade ([IMF, 2020](#)). Moreover, the country also underwent a divesting program focused on the sale of minority stakes in state-owned enterprises and real estate assets, and efforts to privatize state-owned companies.¹³

These positive developments, however, were interrupted in early 2020, with the arrival of the COVID-19 pandemic.

4.2 Since the pandemic

As in other developed and emerging economies, the pandemic drove a large share of the Brazilian economy to a near complete halt by the second quarter of 2020. In response, large and unprecedented fiscal and monetary policies were quickly put in place. While the responses to the crisis were similar in nature to those implemented elsewhere, policy actions taken by the monetary and fiscal authorities were tailored to Brazil’s economic characteristics, its population needs and the mandates of responding institutions.

Actions by the fiscal authority aimed at low-income households and small and medium firms. Fiscal measures included income transfers, health spending and loan guarantees, among others (see panel (a) in [Figure A2](#)). The federal government implemented one of the largest direct income transfer programs in the world, with an initial disbursement of about 4.5% of GDP, reaching more than 60 million people (about a third of the population). The sizable fiscal

¹¹See [Bonomo et al. \(2022\)](#) on earmarked credit and monetary policy transmission in Brazil.

¹²By 2015, total earmarked credit corresponded to about 50% of total credit (about 25% of GDP). This large-scale credit provision with subsidized rates hampered the development and deepening of capital markets, in addition to imposing significant costs to the central government budget ([Nechio and Serra Fernandes, 2022](#)). BNDES accounted for the bulk of earmarked credit to firms. Its subsidized loans, however, were frequently directed to large, unconstrained corporations, instead of targeting firms with more difficulties accessing credit through private channels ([Bonomo et al., 2015](#)), among other allocation inefficiencies ([Carvalho, 2014](#)).

¹³During that short period, Congress approved other important reforms, including a historic labor market reform and the creation of a credit registry bureau system.

package also included measures to facilitate and subsidize credit to small and medium firms, as well as programs aimed at retaining workers, postponing loan payments and others.¹⁴ The Treasury also played an important role during the crisis by adjusting its bond issuance and repurchasing a record amount of government bonds in moments of distress.

The BCB relied on conventional monetary policy, liquidity provision and temporary adjustments to its regulatory framework. The monetary authority announced sizable liquidity and credit support programs, and adopted measures to temporarily alleviate capital requirements of financial institutions (panel (b) in Figure A2).¹⁵ It also lowered the policy rate to 2%, a historically low level (panel (c) in Figure A2). Finally, the timely and strong response of advanced economies' central banks were also key to restoring market confidence and reversing risk-off attitudes toward emerging economies. As a result of all these unprecedented measures, markets in Brazil stabilized and the financial system was able to withstand the most stressful period of the crisis.

Reflecting the strong response from monetary and fiscal authorities, and the gradual reversal of mobility restrictions, Brazil started to recover by the second half of 2020. The economic rebound was initially concentrated in a few sectors, such as manufacturing and agriculture, and led by consumption of durables. As in other countries, the recovery continued during 2021 and 2022, albeit unevenly due to new waves of COVID-19 spread and partial shutdowns.

These dynamics were reflected in diverging sectoral price trends, which contributed to the rise of inflation. Similar to other countries, inflationary pressures resulted from supply and demand imbalances brought about by the pandemic, such as supply chain disruptions and the extraordinary monetary and fiscal policies put in place. The relative contributions of these factors varied across countries, as the recent literature has shown (*e.g.*, Faria-e-Castro, 2021, Cavallo and Kryvtsov, 2021, Jordà and Nechio, 2022, and Hale et al., 2023). While inflationary pressures were initially concentrated in a few sectors, over time they became more widespread, as revealed by various core inflation measures.

Figure 1 shows the significant rise in headline inflation since mid-2020. It started to reverse its course by mid-2022, as a result of aggressive tax cuts that reduced energy prices, improvements in supply chains, and possibly the first effects of contractionary monetary policy. As Figure 2 shows, inflation expectations eventually became unanchored around September 2021.

An interesting fact about this high-inflation episode is that, by the time expectations became unhinged, inflation had already been running high for quite some time. In fact, at that point

¹⁴A detailed list of these programs is available on the government's [website](#).

¹⁵Detailed accounts of these and other measures by the BCB are provided in [Banco Central do Brasil \(2020\)](#).

inflation was close to the peak level it would eventually reach in 2022.¹⁶ Also importantly, by September 2021 the BCB had already done a non-negligible amount of monetary policy tightening, having raised the policy rate from 2% in March 2021 to 6.25% in September 2021, and market participants expected tightening to continue. Nevertheless, the deterioration of expectations continued, and the BCB further tightened monetary policy by continuously raising the policy rate up to 13.75% by August 2022.

The continuing rise of inflation expectations despite inflation having apparently peaked and monetary policy having reached restrictive territory suggests other factors likely played a role in unanchoring expectations. It is noteworthy that heightened fiscal concerns were present since July 2021, when the government was entertaining new exceptions to the spending cap.¹⁷ As the election neared, a range of populist spending measures were unveiled in an attempt by then President Jair Bolsonaro to win votes. During the campaign, the two main candidates, Bolsonaro and Lula, promised considerable fiscal expansion. This contributed to further unanchoring of inflation expectations over the course of 2022.

After the election of Lula da Silva in October 2022 for his third presidential term, the degree of unanchoring started to increase at a faster pace. Since his campaign, but especially since the election, President Lula has been vocal about changing the direction of economic policies. In particular, his government aims to reverse measures and reforms that contributed to fiscal consolidation since 2016. The perception that the country’s fiscal position has deteriorated since the election was picked up by several news articles (*e.g.*, [Andrade, 2022](#)).¹⁸

This is the third episode in which unanchoring of inflation expectations seems to be associated with fiscal concerns. Fortunately, this time around we can explore daily expectations data from the Focus Survey for the path of gross public debt (% GDP), available since 2018. Table 1 reports correlations between deviations of inflation expectations from target ($\pi_{t+2,3}^e - \pi_{t+2,3}^*$) and projected increases in debt/GDP between 1 and 5 and 1 and 8 years ahead (*i.e.* “slopes” of debt/GDP forecasts).¹⁹ We report correlations for projections in levels and in overlapping 30-day changes, and consider three time periods; prior and since the unanchoring of inflation expectations, and since the first election round.

¹⁶In August 2021, inflation was at 9.7%, whereas the 2022 inflation peak, reached in April 2022, was 12.1%.

¹⁷More specifically, a new constitutional amendment to exclude payments due to court-mandated debt from the spending cap. The proposal was sent to Congress in August and was approved in December 2021.

¹⁸In addition, around mid-January 2023, President Lula started attacking the BCB independence and calling for a higher inflation target. Historically, the BCB acted with *de facto* independence, but it was only in February 2021 that its formal independence was approved by Congress. This attack contributed to further unanchoring of inflation expectations ([Harris, 2022](#)). For that reason, our sample ends on January 20, 2023.

¹⁹We limit projections to 8 years ahead because the number of respondents for the last horizon (9 years) is limited. We work with forecast “slopes” to handle innovations to debt/GDP and isolate perceptions about Brazil’s structural fiscal position.

Table 1: Correlations between inflation and gross debt projections

	$\rho(\pi_{t+2,3}^e - \pi_{t+2,3}^*, D_{t+5} - D_{t+1})$		$\rho(\pi_{t+2,3}^e - \pi_{t+2,3}^*, D_{t+8} - D_{t+1})$	
	Level	Δ 30-day	Level	Δ 30-day
Pre-unanch. (01/22/2018 - 08/31/2021)	0.4***	0.03	0.28***	0.09*
Since unanch. (09/01/2021 - 01/20/2023)	0.68***	0.33***	0.74***	0.27***
Since 1 st round (10/03/2022 - 01/20/2023)	0.76***	0.59***	0.72***	0.3*

Notes: Correlations between deviations of inflation expectations from target ($\pi_{t+2,3}^e - \pi_{t+2,3}^*$) and gross debt/GDP forecast slopes for 5- ($D_{t+5} - D_{t+1}$) and 8- ($D_{t+8} - D_{t+1}$) years ahead. 90/95/99% confidence level indicated with */**/***, respectively, based on Newey-West standard errors. Sources: Banco Central do Brasil and authors' calculations.

The table shows an increase in the correlation between inflation expectations and debt forecast slopes since unanchoring began, and an additional increase since the election for the 5-year horizon. This evidence gives credence to our conjecture that unanchoring of inflation expectations and fiscal concerns are once again related in the ongoing episode.

The combination of fiscal concerns and unanchored expectations in a high-inflation environment is all too familiar for Brazil. The previous episodes show a range of factors were needed to bring back confidence and reanchor inflation expectations. The BCB had to act strongly. Importantly, actions and expectations of sound fiscal policy were key to restoring market confidence and bringing inflation expectations back to target. In both episodes, disinflation was lengthy and costly in terms of foregone output.

The similarities between the current and the two previous episodes suggest the path ahead for disinflation will be extremely challenging, unless policies change direction.

4.3 Insights for other countries?

Perhaps the Brazilian experience can help inform the disinflation challenges faced by other countries. Of course, when it comes to cross-country comparisons, making analogies is difficult. It is particularly so when it comes to advanced economies, which have a longer history of low and stable inflation and macroeconomic stability. Nevertheless, two relatively recent episodes in the U.S. and in the U.K. suggest policy credibility can be challenged even in advanced economies.

The first episode refers to the rise of long term inflation expectations in the U.S. in the aftermath of the Global Financial Crisis. We focus on the Survey of Professional Forecasters (SPF) median PCE projections for the next 5 years, 5 years in the future (5-year, 5-year forward), a common measure used by the Fed and market participants to assess inflation expectations ([Federal Reserve Board, 2022](#)). The SPF is conducted quarterly by the Federal Reserve Bank of Philadelphia and inquires about 30 professionals on their views about inflation (among many

other variables). The series of interest is available from 2007Q1 to 2022Q4.

Panel (a) in Figure 4 depicts the 5y-5y forward series. Except for the significant rise in the aftermath of the GFC, long-term inflation expectations in the U.S. have remained well-anchored near the 2% inflation target. This holds even for the most recent period, despite the significant increase in inflation (and short-term expectations) since the pandemic.

In analogy with our analysis using Brazilian inflation expectations data, we use the SPF to construct a measure of the degree of expectations unanchoring in the US. To that end, we set $\pi_t^* = 2\%$ for all t , as stated in the Fed’s long-run goals, and set $\pi_t^{max} = 3.5\%$.²⁰ As in Section 2.1, we say expectations are unanchored when $U_t > 0.1$.

Panel (b) in Figure 4 reports the unanchoring index for the United States. The figure shows expectations seem to have unanchored in the U.S. in the aftermath of the GFC. As the time series shows, this rise in expectations is rather unusual (Nechio, 2015).

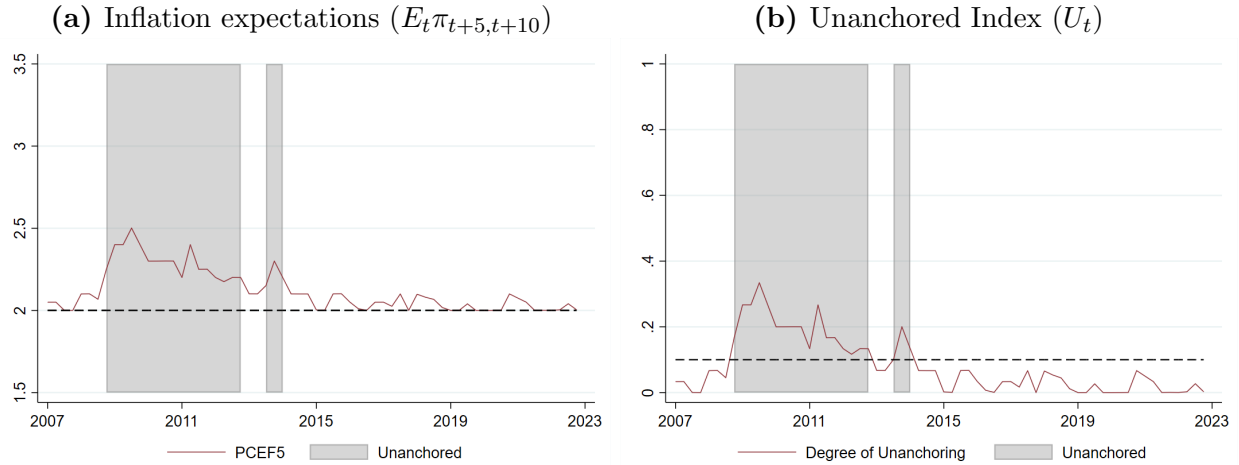
Aiming to understand the reasons behind the increase in inflation expectations around that time, the Philadelphia Fed included a special question in its 2012Q2 survey, inquiring participants about the reasons behind their long-term inflation views. In their responses, panelists cited several reasons behind their above-target inflation forecasts. Some worried about the FOMC being too slow to tighten monetary policy at the appropriate time, others worried about the political pressures the FOMC would face, and its willingness to respond to the extraordinarily accommodative fiscal measures introduced in response to the GFC. Finally, participants questioned FOMC members’ biases toward higher inflation and reluctance to vote for tighter monetary policy in face of adverse supply shocks (Federal Reserve Bank of Philadelphia, 2012).

Turning to the U.K., since 2021 inflation has been persistently elevated and significantly above the Bank of England’s (BoE) 2% target. As in other economies, the rise in inflation can be associated with supply and demand imbalances brought about by the pandemic, but also with the energy shock produced by the war in Ukraine (Bank of England, 2022). The monetary authority has responded by unwinding its pandemic-related policies and by raising its policy rate from near zero to 4% (as of February 2023).

Against this backdrop, in September 2022 the government announced a fiscal package which, among other measures, lowered (or delayed predicted hikes in) taxes (HM Treasury, 2022a). The plan was badly received by markets, which questioned the funding sources and its implications for public debt and inflation (*e.g.*, Mackintosh, 2022). The weeks that followed saw a sharp increase in bond yields and a depreciation of the currency. The episode led to the resignation of the Prime Minister and a nearly complete reversal of the announced policies “to provide

²⁰This choice is arbitrary, as the Fed does not have a tolerance band around its inflation target. Core PCE inflation has run below 3% in the two decades preceding the pandemic, suggesting 3.5% is a reasonable choice.

Figure 4: Inflation expectations and the unanchoring index: United States



Notes: Panel (a) reports inflation expectations from the SPF for 5 years, 5-years forward in the United States. Panel (b) reports the daily index U_t as described in equation (1). Shaded areas correspond to dates in which $U_t > 0.1$. Sources: Survey of Professional Forecasters and authors' calculations.

confidence in the government's commitment to fiscal discipline" (HM Treasury, 2022b).

During the process, the BoE had to intervene in the bond market due to financial stability concerns. Moreover, its "Market Participants Survey" showed an increase in the median 5-year-ahead inflation expectations from 2% to 3% in the September and November surveys. Before the announcement and after the policy reversal, 5-year-ahead inflation expectations were on target. During the time in which inflation expectations rose above target, survey participants increasingly weighted domestic factors as a main driver of their views.²¹

These two episodes and the Brazilian experience share an important component – namely, challenges to policy credibility. While such episodes are somewhat frequent in the case of Brazil, they are rarer when it comes to advanced economies. Nevertheless, the U.S. experience after the GFC and the recent U.K. episode show central bank credibility can be questioned and long run inflation expectations can move meaningfully above target. In addition, fiscal concerns were present in both cases, albeit to different degrees. Finally, while we focus on episodes in which inflation expectations moved above target, following the GFC many advanced economies faced risks of downward unanchoring of inflation expectations (*e.g.*, Ehrmann, 2015).

5 Conclusion

Inflation has risen above target in many countries since the pandemic. In Brazil, together with the rise in inflation, inflation expectations became unanchored. Previous bouts of high-inflation

²¹Survey results are available since February 2022 on the Bank of England [website](#).

in Brazil show policy credibility is frequently challenged. Disinflation is lengthy, economically costly, and requires a combination of factors, which include tight monetary policy and the credible announcement and eventual implementation of sound fiscal policies. Recent developments in the U.K. and in the U.S. following the GFC show policy credibility can be challenged even in advanced economies.

Empirical evidence from advanced economies available in the literature shows disinflation is usually costly, and more so when policy lacks credibility. While most episodes underlying these conclusions predate the adoption of inflation targeting, the Brazilian episodes we describe in this paper corroborate such conclusions. It remains to be seen whether the current disinflation will prove to be as costly as some of the literature for advanced economies and the recent episodes in Brazil suggest.

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Appendix

A Brazil's structural fiscal challenges

Since the reinstatement of a democratic regime in the late 1980s, both public spending and public debt have increased substantially, reaching levels above those of many emerging and developed economies. This deterioration can be somewhat attributed to features introduced with the new Constitution of 1988. The change in political regime, after 20 years of military government, left the central government in a weaker bargaining position relative to state and local governments. As a result, the new constitution failed to establish a coherent mechanism to protect the interests of the majority of the population against the multiple pressures and rent-seeking from an emerging democracy (Werneck, 2006).

At first, the increase in spending was hidden by the challenging hyperinflation accounting. Following the 1994 Real Plan and the subsequent adoption of an inflation targeting regime, lower levels of inflation allowed a clearer view of the government's fiscal needs (see Bacha, 2003 for a detailed account of the Real Plan). In the first years after stabilization, the rise in public spending was accompanied by an increase in the tax burden, which increased by 10 percentage points between 1993 and 2006 (as a share of GDP). After that, spending continued to increase, but it was typically financed with public debt. At first, the commodity boom of the 2000s helped hold back the overall debt increase. As the commodity cycle phased out, however, Brazil's public debt increased significantly, reaching levels close to 80% of GDP even before the pandemic.

Panels (a) and (b) in Figure A1 illustrate these dynamics by reporting primary public spending (total spending excluding interest payments) and gross public debt as a share of GDP, respectively. For reference, panel (c) reports gross debt for Brazil and other countries as of 2019 and 2022. The latter panel shows how debt in Brazil has reached levels closer to those of developed economies and further away from its Latin American peers.

The nearly continuous rise in public spending had a few main contributors. Spending on social programs and on benefits accrued to particular groups have increased substantially.^{22,23} Moreover, many of these benefits are indexed to the national minimum wage, which increased

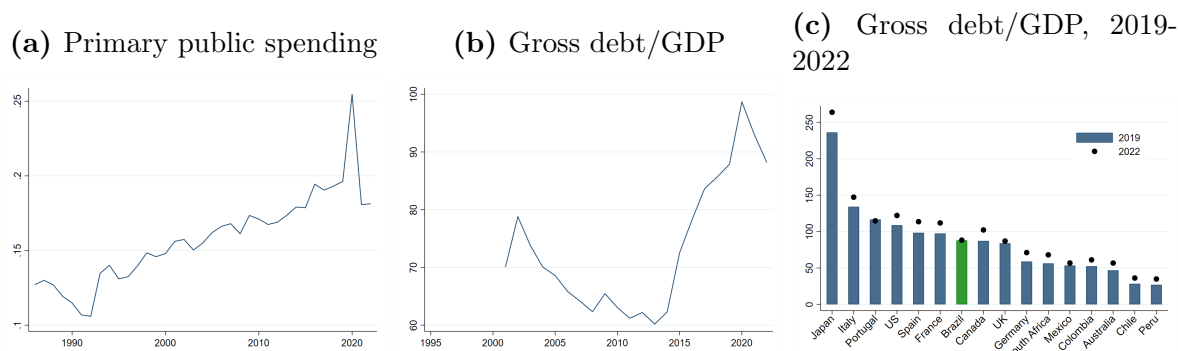
²²International comparisons show Brazil's spending on social protection networks, education and the health system are above the averages across both developed and emerging economies

²³Even though many of these policies target lower income households, there is limited effort in evaluating their efficacy and efficiency, with some of them targeting similar groups with overlapping benefits. Mendes (2022) (and references therein) analyze many of those programs and discuss their limited efficacy, despite the costs.

by more than 100% in real terms between 1995 and 2019. Democracy also intensified the decentralization of decisions regarding resource allocation. State and local governments increased spending significantly, later turning to the federal government for help financing their debt.

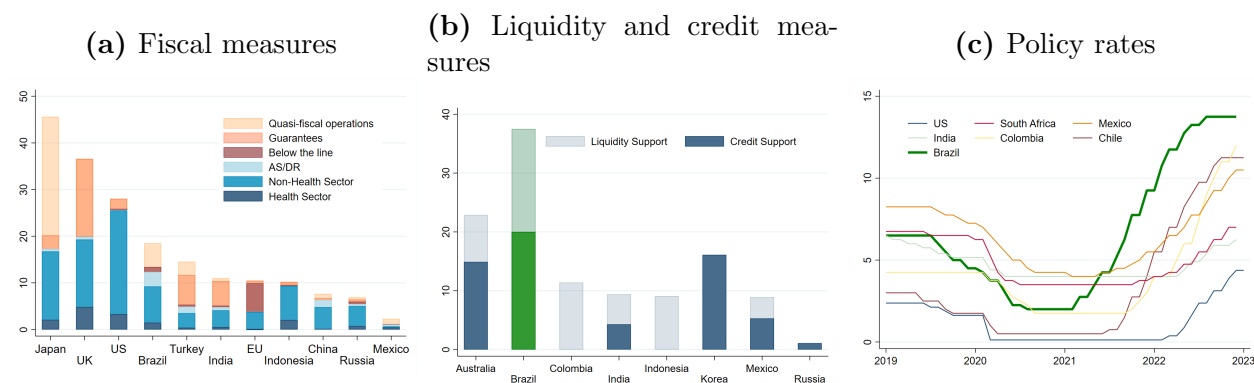
The panels in Figure A1 show that, despite the fiscal consolidation efforts between 2016 and 2019 (as described in Section 4), Brazil started the pandemic with a weak fiscal position both historically and relative to its peers. For a comparison, Figure A2 reports a summary of fiscal and monetary measures taken by various countries in response to the pandemic.

Figure A1: Public spending and gross debt (%GDP)



Notes: Panel (a) reports primary public spending as a share of GDP. Panels (b) and (c) report central government gross debt as a share of GDP. Sources: FGV IBRE and IMF Fiscal Monitor.

Figure A2: Pandemic fiscal and monetary measures in emerging and advanced economies



Sources and Notes: Panel (a) shows fiscal measures as a share of 2019 GDP, where AS/DR stands for Accelerated spending/Deferred revenue, and below the line liquidity measures include equity injections, loans, asset purchase or debt assumptions. Panel (b) reports announcements of liquidity and credit measures as of December 2020 (as a share of 2019 GDP). Panel (c) shows main policy rates. Sources: IMF Fiscal Monitor: Database of Country Fiscal Measures in Response to the COVID-19 Pandemic (October, 2021), Nechio and Serra Fernandes (2022) and Bloomberg.