

Kamin, Steven B.; Kearns, John

Working Paper

Latin American Monetary Policy in the Pandemic Era

AEI Economics Working Paper, No. 2022-10

Provided in Cooperation with:

American Enterprise Institute (AEI), Washington, DC

Suggested Citation: Kamin, Steven B.; Kearns, John (2022) : Latin American Monetary Policy in the Pandemic Era, AEI Economics Working Paper, No. 2022-10, American Enterprise Institute (AEI), Washington, DC

This Version is available at:

<https://hdl.handle.net/10419/280657>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



Latin American Monetary Policy in the Pandemic Era

Steven B. Kamin

American Enterprise Institute

John Kearns

American Enterprise Institute

AEI Economics Working Paper 2022-10

Updated August 2022

© 2022 by Steven B. Kamin and John Kearns. All rights reserved.

The American Enterprise Institute (AEI) is a nonpartisan, nonprofit, 501(c)(3) educational organization and does not take institutional positions on any issues. The views expressed here are those of the author(s).

Latin American Monetary Policy in the Pandemic Era

Steve Kamin and John Kearns*

August 5, 2022

Abstract: This paper assesses Latin American monetary policy during the pandemic era against the benchmark of a “balanced” monetary policy strategy, that is, a strategy in which policies respond both to deviations of economic activity from equilibrium as well as deviations of inflation from target. We first review the evolution of Latin American monetary policy during this period. Central banks in the region cut rates sharply in response to the recession of 2020, despite steep currency depreciations, but subsequently tightened policy aggressively as inflation rebounded in 2021. We then compare these developments to the behavior of Latin American monetary policy in previous years. Estimating a Taylor rule for the period 2007 to 2019, we find that Latin American central banks had been responding in a balanced manner to movements in both inflation and output. However, with the pandemic, the weight of inflation in their reaction function rose substantially and the weight of output declined. Consistent with that finding, we find that policy interest rates generally fell less in 2020 than those predicted by the Taylor rule model (estimated over pre-pandemic years), and they rose more than predicted by the model in late 2021 and early 2022. Our findings could be interpreted to mean that Latin American central banks abandoned a balanced strategy in favor of one focused solely on fighting inflation. But we believe it more likely that the model, estimated over a more normal period, simply may not provide a good guideline for how Latin American central banks would (or should) react in response to a downturn of unprecedented depth followed by an equally dramatic inflationary surge. Several good reasons for monetary policy in the region to have tightened unusually sharply over the past year fall outside the scope of the standard Taylor rule, including the expansion of fiscal deficits and debt, the drag on supply from pandemic scarring, and the extraordinary rise in global interest rates.

* Steve Kamin is a senior fellow at the American Enterprise Institute (AEI); John Kearns, formerly a research associate at AEI, is a graduate student at Princeton University. The authors would like to thank Ben Clements, John Roberts, Philip Turner, Stan Veuger, and Alejandro Werner for useful comments and suggestions, and Beatrice Lee for excellent follow-up research assistance.

I. Introduction

A persistent issue for central banks in emerging market economies (EMEs) has been their difficulties in pursuing counter-cyclical monetary policies such as those adopted in advanced economies (AEs). The flexible inflation targeting pursued by most AE central banks entails tightening monetary policy when inflation exceeds their targets, but loosening policy when economic activity declines below its equilibrium level. Such policies are generally pursued by AE central banks, even when their formal mandates are for price stability alone.

In EMEs, however, loosening policy in response to weak activity has been complicated by several factors. First, historically, EME recessions have been triggered by financial crises, which often have been the product of investor worries about excessively lax macroeconomic policies. Therefore, even in the face of sharp recessions, EME central banks frequently have been forced to tighten policy in order to bolster investor confidence and restrain exchange rate depreciations and capital outflows that threaten to further undermine financial stability. Second, and as a related matter, in EMEs with histories of high and poorly-anchored inflation, even small and transitory increases in inflation had to be curtailed through monetary tightening before they could translate into higher inflation expectations and, again, investor worries about macroeconomic management. These considerations have applied with particular force in Latin America, given its long history of high inflation and even hyperinflation.

Over the past one and a half decades or so, EME central banks appear to have pursued more balanced monetary policies.¹ By balanced policies, we mean policies that respond both to deviations of economic activity from some equilibrium level as well as deviations of inflation from target. For example, while many EME central banks responded initially to the global financial crisis (GFC) after the Lehman Brothers bankruptcy by raising interest rates, many of them quickly reversed these increases several months afterwards and subsequently dropped rates to record low levels. More recently, EMEs universally loosened policy in response to the COVID-19 pandemic, despite the initial turbulence in global financial markets and collapse in prices of risky assets.²

In the early phase of the pandemic recession, Latin America's central banks appeared to participate in the EMEs' countercyclical response, cutting policy interest rates and even employing quantitative easing (QE) despite soaring credit spreads and plunging currencies. But more recently, monetary policy in Latin America has aggressively tightened in response to rising inflation, even as policy in the AEs and many other EMEs has adjusted more slowly. This raises questions as to whether Latin American central banks have reverted to an earlier and less countercyclical strategy.

In this note, we take a close look at Latin American monetary policies in the pandemic era. In Section II below, we review the responses of the region's central banks to the sharp depreciations of their currencies at the beginning of the pandemic crisis, the declines in output

¹ See, among others, Coulibaly (2012), McGettigan et al. (2013), Takats (2012), Vegh and Vuletin (2012, 2016), and Vegh et al. (2017).

² See Aguilar and Cantu (2020), Ayres et al. (2021), Cavallo and Powell (2021), Gelos et al. (2020), and IMF (2021).

during the global recession, and the surge in inflation that started with the recovery from that recession. In each case, we compare Latin American monetary policies with those of other EMEs. In Section III, we estimate Taylor rules to assess how the region's central banks calibrated their policies in the years before the pandemic to balance the potentially conflicting objectives of stabilizing output and inflation before the pandemic. We use these estimates to assess whether that balance shifted after the start of the pandemic. Section IV concludes.

Throughout, we focus on the central banks of the five most prominent, inflation-targeting Latin American economies: Brazil, Chile, Colombia, Mexico, and Peru. We exclude the central banks of Argentina and Venezuela, whose lack of independence and inability to stabilize their economies set them apart from their neighbors.

Our principal findings are as follows.

- As documented by other observers, Latin American central banks responded quickly and forcefully to the pandemic crisis and recession of 2020. They cut rates almost immediately at the outset of the crisis, despite the collapse in their currencies; this contrasts with their rate hikes in response to exchange rate depreciations after the September 2008 Lehman Brothers bankruptcy. Monetary policy continued to loosen through much of 2020, even as output started to recover, and in line with the actions of central banks in EMEs outside Latin America. And Latin American central banks kept policy on hold in the early months of 2021, despite the beginnings of the pickup in inflation.
- However, as 2021 proceeded, Latin American monetary policy started to reverse its earlier loosening, and this process has picked up steam since then. In consequence, policy interest rates in Latin America have generally risen by more over the last one and a half years than those of other EMEs, conditional on how much their inflation rates have risen. Policy rates generally have also risen more in Latin America than elsewhere, conditional on the increase in forecasted inflation.
- Estimated Taylor rules indicate that in the years immediately preceding the pandemic, Latin American central banks had been responding in a balanced manner to both inflation and output, had been substantially smoothing their policy-rate movements, and had not been responding separately to movements in exchange rates. We use recursive-regression techniques to document that over the course of the last couple of

decades, these central banks had increased their policy smoothing while reducing their responsiveness to exchange rate movements. The capacity to pursue a less volatile policy that could ignore currency movements likely reflected, among other factors, improved fiscal policy, reduced dependence on short-term external borrowing, greater central bank independence, and adoption of inflation targeting.

- Extending the estimation of the Taylor rules through 2022 Q1, we show that the coefficient on inflation rose substantially and significantly, while the coefficient on output shrank. This shift was confirmed when we compared the evolution of Latin American policy interest rates during the pandemic period to the predictions of the Taylor rule model, estimated through 2019. Policy rates generally fell less than predicted by the model in 2020 and then rose more than predicted in late 2021 and early 2022.

Our findings could be interpreted to mean that Latin American central banks have abandoned years of balancing concerns about inflation and output roughly equally, and thus acting countercyclically as needed, in favor of a strategy focused solely on fighting inflation. But we doubt that the actions of the past couple of years reflect a sea change in the region's monetary policy strategy. Instead, we think it likely that the model, estimated over a more normal period (for the most part), may not provide a good guideline for how Latin American central banks would react in response to a downturn of unprecedented depth and longevity, followed by an inflationary surge of equally dramatic proportions. As noted above, the region's central banks did indeed cut rates quickly and substantially in response to pandemic recession, but in some cases simply not as much as the model—driven by unprecedented plunges in output—was calling for. And, moving to the inflationary surge that followed, the unusually rapid tightening of Latin American monetary policy was likely motivated by factors outside the standard Taylor rule model: the expansion of fiscal deficits and debt in the region; the drag on supply from pandemic scarring; and the extraordinary rise in global interest rates.

Accordingly, our best guess (and our hope) is that if and when inflation is brought back under control and the reverberations of the pandemic die out, Latin American monetary policy will revert to the balanced strategy followed before the pandemic. But, quite obviously, prospects for both Latin America's economy and its monetary policy are very uncertain at present.

II. Monetary Policy Responses to the Pandemic Crisis, Recession, and Inflation

II.1 Response of central banks to exchange rate depreciation

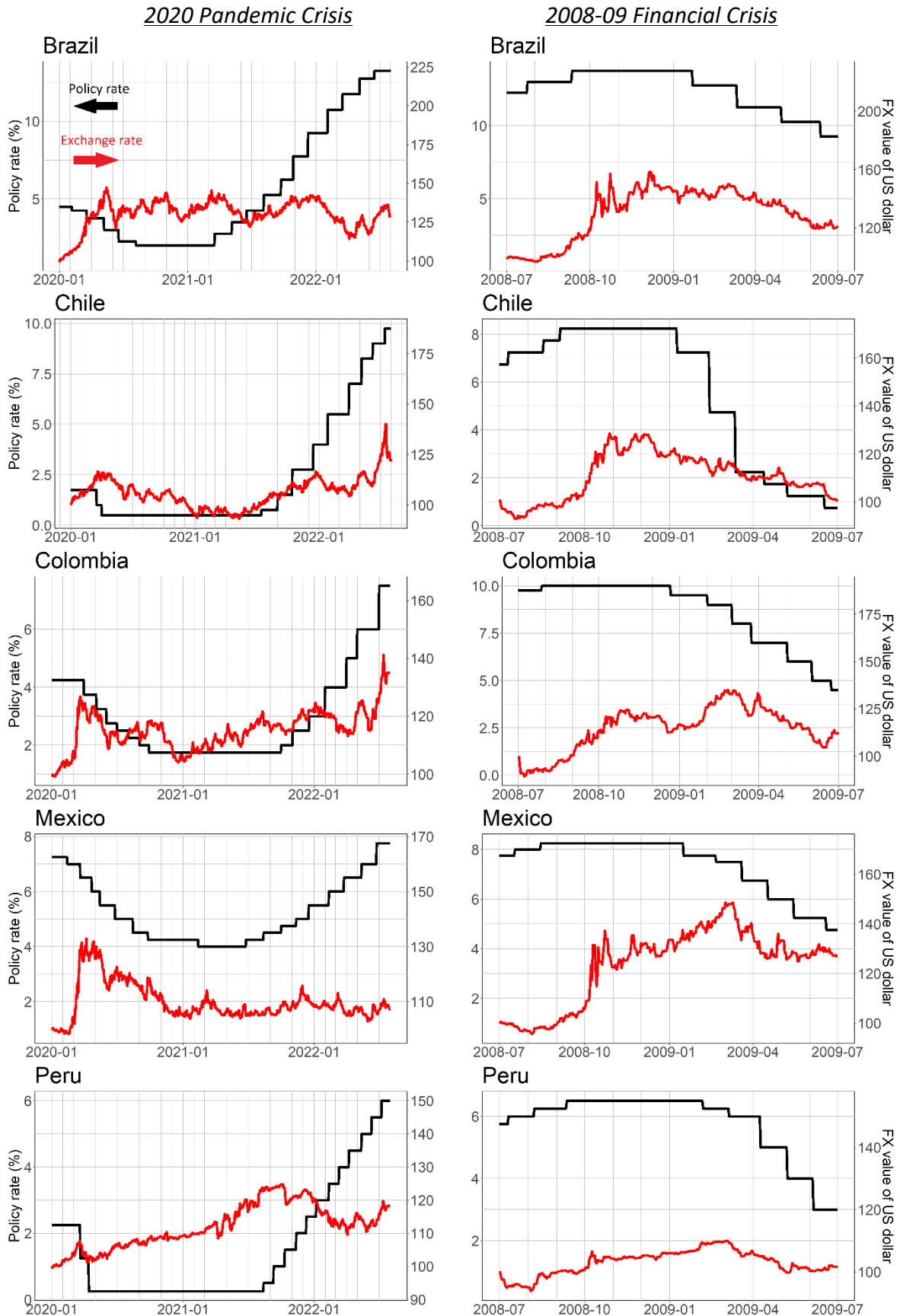
As noted above, historically, central banks in EMEs, and especially in Latin America, have not only focused on stabilizing output and inflation, but, in order to do so, have also reacted directly to counter large depreciations of their currency. This reflected the sensitivity of inflation expectations and investor sentiment to declines in the exchange rate, which threatened to boost inflation and trigger capital flight.

The pandemic recession in Latin America was preceded, as in most of the rest of the world, by a retreat of investors from risky assets, soaring credit spreads, and plunging currencies. Figure 1 plots the policy interest rates of the five major Latin American central banks against the value of their currencies against the U.S. dollar. The column of panels on the left focuses on the period since the start of the COVID-19 pandemic. These panels make clear that in early 2020, these central banks started cutting interest rates immediately in response to the disruptions caused by the pandemic, despite very sharp depreciations of their currencies. In its April statement announcing a 50 basis point cut in the policy rate, the Bank of Mexico acknowledged that declines in global risk sentiment were boosting exchange rate volatility, but

felt that policy loosening was necessary to support financial markets and the economy. Other central banks made similar statements.

The policies pursued in early 2020 represented a dramatic turnaround from the behavior of Latin American central banks in response to the GFC, shown in the right-hand columns of panels in Figure 1. Like the COVID-19 pandemic, the Lehman Brothers bankruptcy triggered a global retreat from risky assets. But in this instance, Latin American monetary policy first tightened sharply in response to collapsing exchange rates and only later reversed those movements, as the global financial panic eased and their currencies began to retrace their earlier declines. This delay in cutting rates partly owed to the fact that GDP was relatively high in these economies on the eve of the GFC, but probably also because Latin American central banks were more focused on fighting inflation. (See data in Appendix 2.)

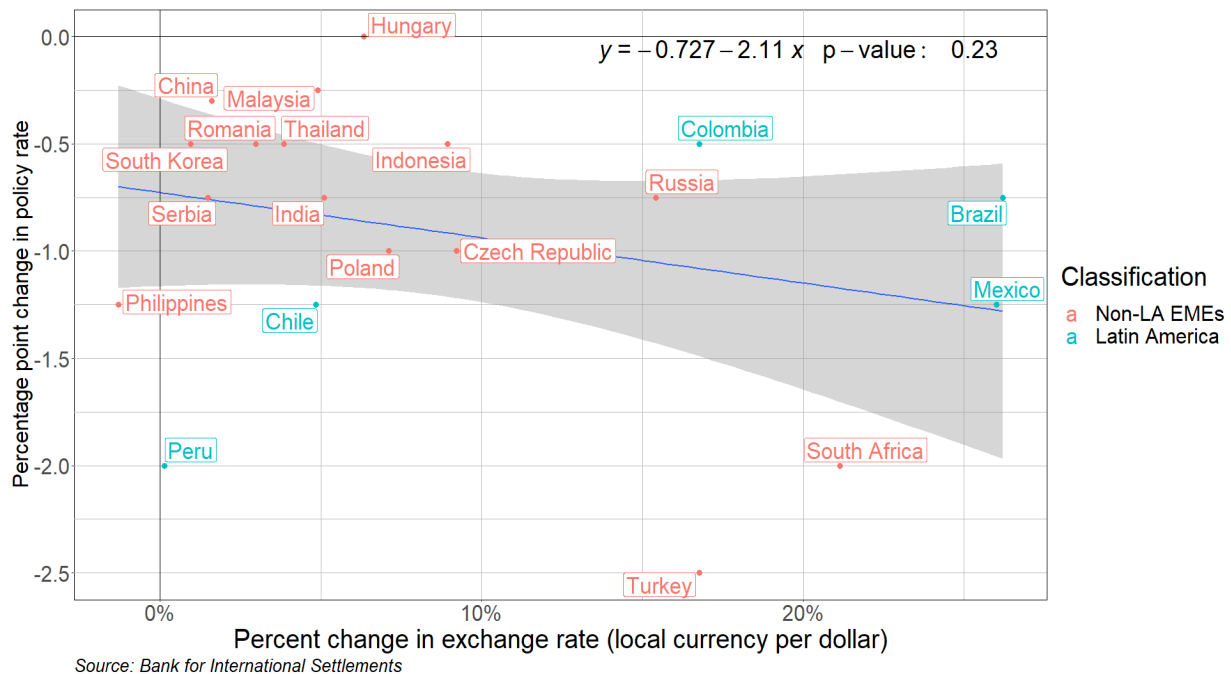
Figure 1: Response of Latin American Monetary Policy to Exchange Rates



Source: Bank for International Settlements
 Note: Red plots FX value indexed where first shown date equals 100.
 An increase indicates depreciation of the Latin American currency.

In Figure 2, we compare the responses (or lack thereof) of Latin American central banks to currency depreciation with those of other EME central banks during the initial phase of the pandemic.³ The chart focuses on the correlation between changes in exchange rates (the X axis) and changes in policy interest rates (the Y axis) from end-January to end-April 2020. The bottom line is that Latin American central banks were, on balance, as aggressive as other EME central banks in cutting rates, conditional on the depreciation of their currencies.

Figure 2: Policy Interest Rates and Exchange Rates: End-January to end-April 2020



In fact, the downward sloping trend line suggests that the central banks of countries with greater exchange rate depreciation actually cut interest rates by more, perhaps because both declines in currencies and in interest rates reflected declines in output. This relationship is loose; the insert equation indicates that there is a 23 percent probability that the slope coefficient in the trend line is not different from zero. Nevertheless, the figure makes clear that

³ This and Figure 4 are similar to charts presented in Aguilar and Cantu (2020).

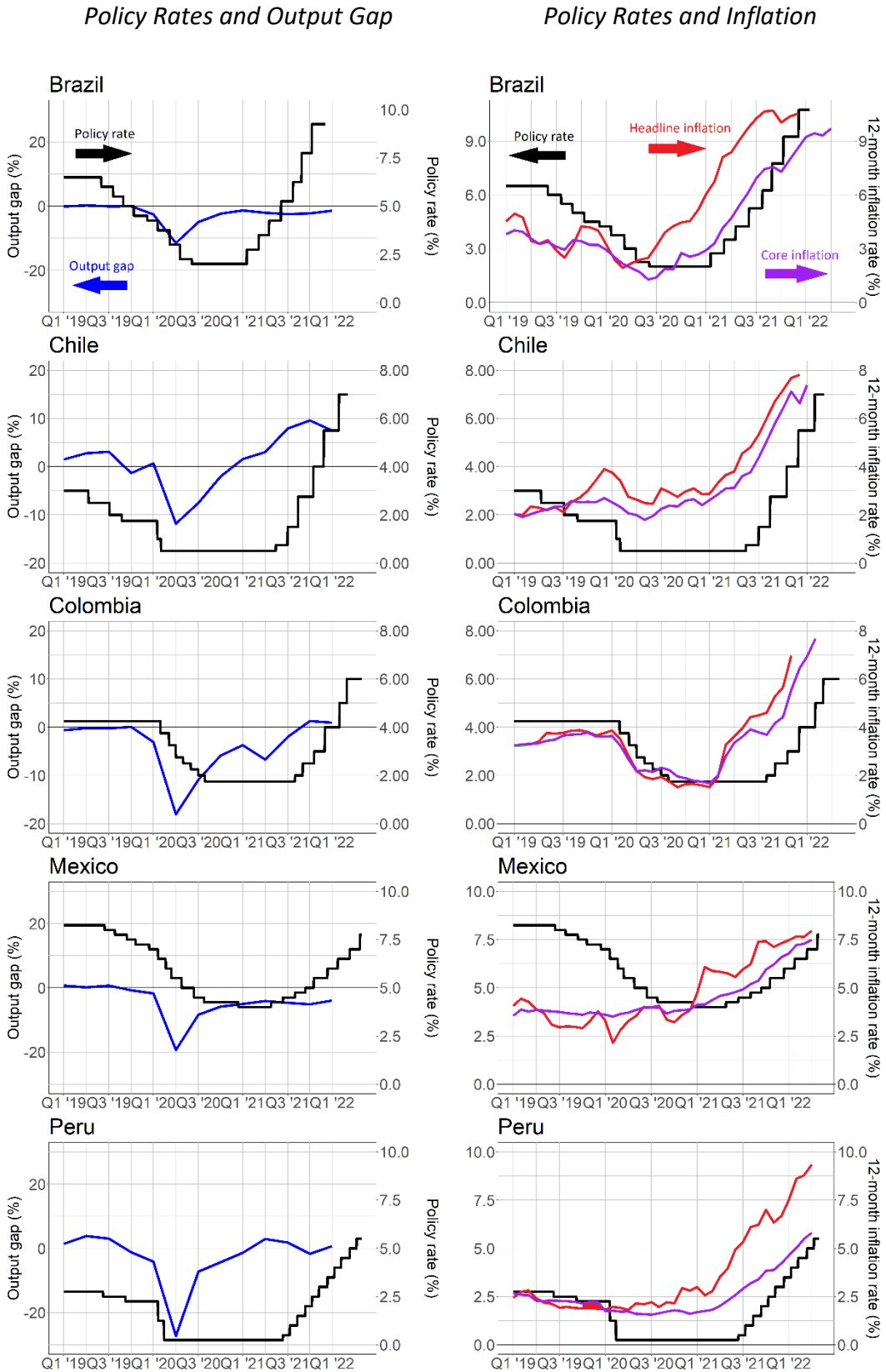
Latin American central banks were generally as resistant as other EMEs to tightening in response to falling currencies. (The grey shaded area represents the 95 percent confidence interval around the trend line.)

II.2 Response of central banks to pandemic recession

Figure 3 below compares Latin American policy rates to the two main inputs into a standard Taylor rule: estimated output gaps, on the left, and inflation rates, on the right.⁴ For now, we focus on the left-hand side of the figure. It makes clear that Latin American central banks lowered rates quickly and substantially in the first half of 2020 in response to the declines in GDP. They generally continued to lower rates into the second half of that year, even as output started to rebound. And they kept rates low for some time thereafter, despite output gaps nearly closing in some countries. These outcomes are all consistent with a policy reaction function that weights output heavily.

⁴ For each country, output gaps are calculated as the percent difference between real GDP and trend GDP. To calculate the latter, an HP filter with a smoothing parameter of 1600 was applied to a series comprised of actual GDP through 2019 Q4 and an ARIMA forecast of GDP over the pandemic period. Charts showing the evolution of actual and trend GDP, along with other relevant data, are presented in Appendix 2.

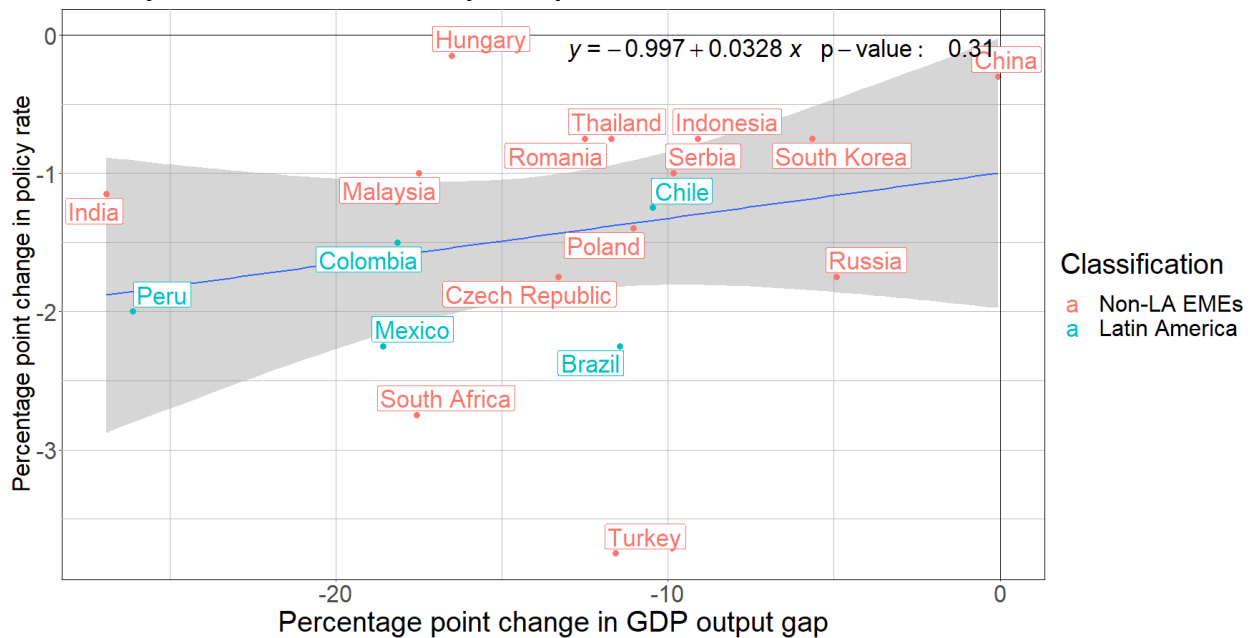
Figure 3: Response of Latin American Monetary Policy to Output and Inflation



Source: Bank for International Settlements, CEIC

Figure 4 compares the responses of Latin American and other EME central banks to the loss of output during the pandemic recession. It plots the movement in policy interest rates in each country in the first two quarters of the recession against changes in the output gap. The trend line is loosely upward-sloping, pointing to some tendency for countries with smaller declines in output to implement smaller rate cuts, although there is a great deal of variation around it.⁵ Latin American central banks fell either close to (Peru, Colombia, Chile) or well below (Brazil, Mexico) this trend line. Moreover, unlike in the GFC, rate cuts in Latin America and other EMEs were augmented by quantitative easing, a novel policy move for EMEs.⁶

Figure 4: Policy Interest Rates and Output Gaps: Q4 2019 to Q2 2020



⁵ Policy interest rates in advanced economies (AEs), not shown, generally fell much less than in EMEs. AE rates were already close to or below zero at the start of the pandemic, and much more of those countries' monetary stimulus came in the form of quantitative easing.

⁶ See Cavallo and Powell (2021), IMF (2020), and World Bank (2021).

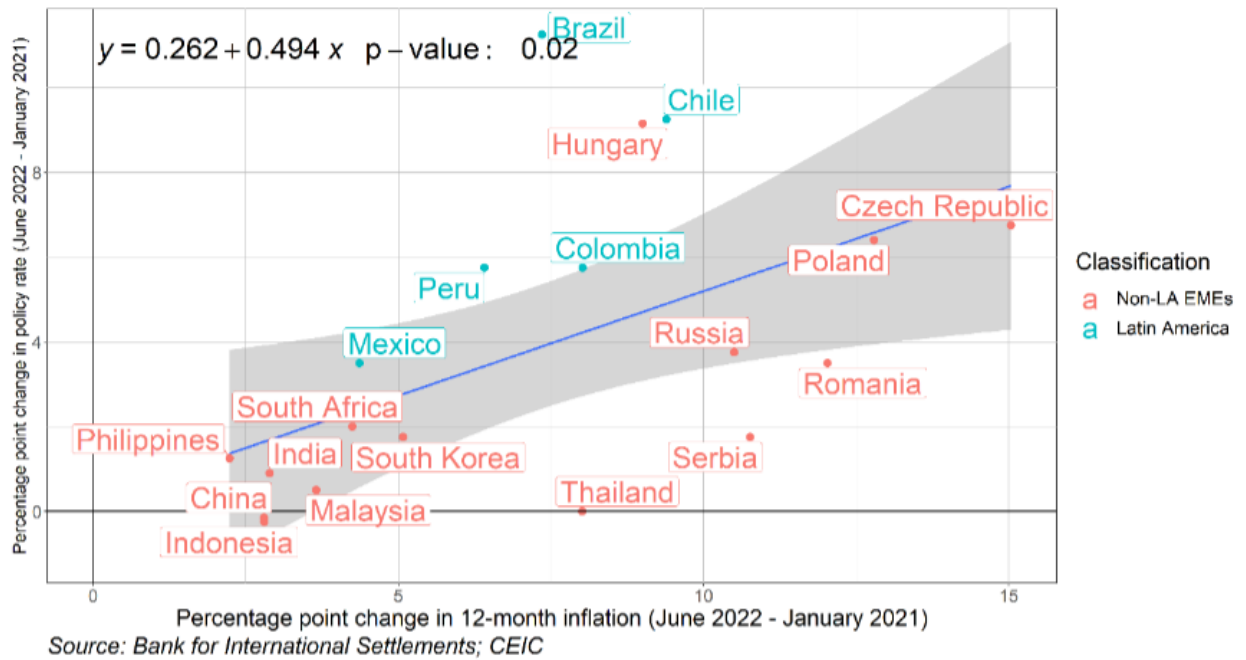
11.3 Responses of central banks to the recent surge in inflation

We now turn to the right-hand side of Figure 3. Latin American central banks did not start raising policy rates in the region until well after inflation had started to pick up. All of them wrestled for months with the question of whether increases in inflation were transitory and whether they were large enough to merit raising rates. Brazil tightened first, in mid-March 2021, followed by Mexico, Chile, Peru, and lastly Colombia. While their interest rates started out historically low at the beginning of the tightening cycle, they are now above their ranges for the last decade or so.

Figure 5 compares Latin America's monetary policy tightening with the actions of other EME central banks. It plots the rise in policy rates among the EMEs—both Latin American and others—since the beginning of 2021 against the rise in inflation during this period.⁷ The slope of the trend line of this relationship is statistically significantly different from zero. Four of the five Latin American central banks show rate increases that lie at or above the 95 percent confidence interval around the trend line. This suggests that Latin American central banks have generally reacted more aggressively to the rise in inflation than in most other EMEs.

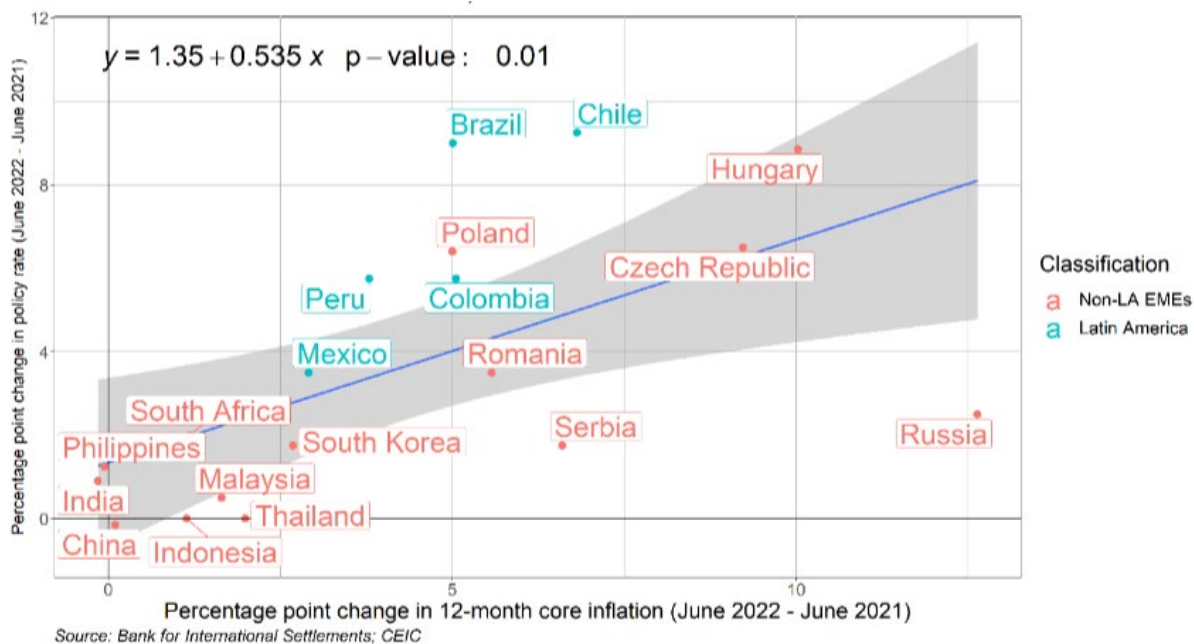
⁷ Turkey has been excluded from Figures 5-7, and Russia from Figure 7, as representing extreme outliers.

Figure 5: Changes in policy interest rates and headline inflation since January 2021



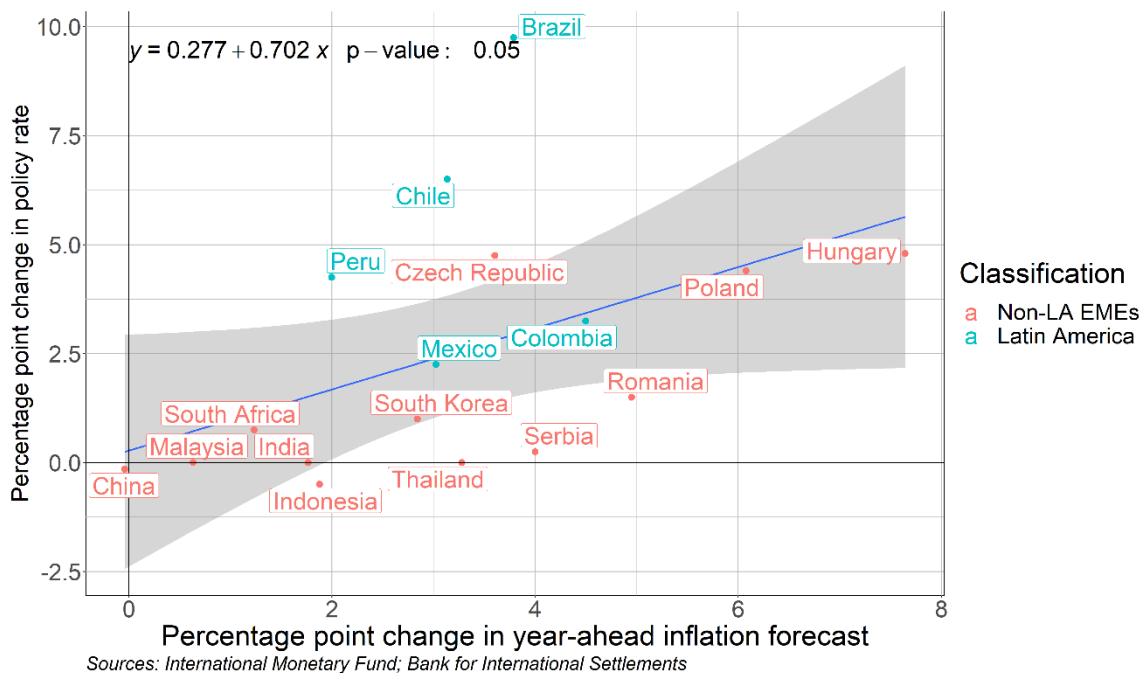
Of course, much of the recent surge in inflation, and much of the reason why many initially believed it to be transitory, owes to the rise in energy and food costs. Figure 6 presents the same analysis, based on recent changes in core inflation, which excludes energy and food costs. The story remains much the same as before, with Brazil and Chile evidencing unusually strong monetary responses to rising inflation, while Peru and Colombia also raised rates above the bounds of the cross-country relationship.

Figure 6: Changes in policy interest rates and core inflation since January 2021



While Figures 5 and 6 document a cross-country relationship between inflation rates and policy rates, a key determinant of monetary policy is the expectation of future inflation rates. Figure 7 draws on the IMF World Economic Outlook (WEO) forecasts as a consistent measure of inflation projections for our sample countries. The X axis measures the change between the October 2020 WEO forecast of inflation in 2021 and the April 2022 WEO forecast of inflation in 2022. The Y axis measures the change in policy interest rates between end-October 2020 and end-April 2022. These calculations again show a significant relationship between the two variables. And, again, most of the Latin American central banks fall well above the trend line, especially Brazil.

Figure 7: Changes in policy rates and IMF year-ahead inflation forecasts between October 2020 and April 2022



III. An Estimated Taylor rule for Latin American Monetary Policy

The evidence reviewed above makes clear that during the first months and quarters of the pandemic crisis, Latin American central banks acted forcefully to protect economic activity. They cut rates sharply in the face of steep currency depreciations in early 2020, contrasting with their behavior during the GFC. Their monetary loosening was on par with that of other EME central banks, and they kept rates low despite substantial recoveries of output in the second half of 2020 and even initial increases in inflation. However, by the middle of 2021, Latin American central banks started raising rates aggressively, even as output continued to languish in some economies. And their rate hikes exceeded those of other EME central banks, conditioned on the rise in inflation and inflation forecasts.

These developments prompt a number of questions: How had Latin American central banks been balancing the objectives of output and inflation stabilization before the pandemic? Was

their response to the initial phase of the pandemic consistent with, or a deviation from, their earlier monetary policy strategy? And what about their subsequent aggressive response to the surge in inflation?

To address these questions, we estimate Taylor rules for Latin American central banks over the 12 years leading up to the pandemic—2007 to 2019—and assess how the actions of these banks during the pandemic period compared to this benchmark. This estimation period was chosen so as to start early enough to include the GFC, the episode most similar to the pandemic crisis, but not so early as to include the transition to inflation targeting in these countries.⁸

We start with a standard open-economy central bank reaction function:

$$i_t = r^* + \pi_t + \beta(\pi_t - \pi^T) + \gamma(y_t - y_t^*) + \delta(\Delta e_t) + \lambda(i_{t-1}) + \varepsilon_t \quad (1)$$

where i is the policy interest rate, π represents year-over-year inflation, π^T the inflation target, y the level of real GDP, y^* the level of potential GDP, e the real multilateral exchange rate (a rise indicates appreciation), Δ the percent change from the previous period, and ε the error term. The lagged interest rate is included, as is standard in empirically estimated Taylor rules, to capture central banks' inclination to smooth out interest rates over time. The change in the real exchange rate is included because, as discussed above, many EME central banks appear, or have appeared in the past, to respond to changes in the currency value. This may be either because these central banks attempt to target the exchange rate in addition to inflation and output, and/or because exchange rate changes may signal future movements in inflation, an especially salient consideration in small open economies.

⁸ Inflation targeting was adopted in 1999 in Brazil, Chile, and Colombia, 2001 in Mexico, and 2002 in Peru. (De Gregorio, 2019; Perez Caldentey and Vernengo, 2019).

In practice, we do not observe r^* and, at least during the estimation period, there were few changes in the target inflation rate. Accordingly, rolling these terms into the intercept, the specification becomes:⁹

$$i_t = \alpha + \beta\pi_t + \gamma(y_t - y_t^*) + \delta(\Delta e_t) + \lambda(i_{t-1}) + \varepsilon_t \quad (2)$$

This equation is estimated using quarterly data. Appendix Table 1.1 shows the results separately for each Latin American country. The coefficients on inflation and output are generally significant and their magnitudes are sensible. However, for our analysis below, we prefer to estimate the equation using data for all five Latin American countries using panel data regression. This makes it easier to generalize about Latin American monetary policy. More importantly, it allows us to introduce time fixed effects into the model, which may capture the effects of common shocks not otherwise measured in our explanatory variables.

Table 1 below presents the estimation results, using headline inflation rates. (Appendix Table 1.2 repeats the estimations, but using core inflation; the results are essentially similar.) Focusing on column 1 below, which spans the pre-pandemic period, the estimated coefficients on inflation, the output gap, and lagged interest rates are of sensible magnitudes: In the long run, Latin American nominal policy rates rise 1.3 percentage points for each percentage point rise in inflation (real rates rise 0.3 percentage points) and 1.2 percentage points for each percentage point widening of the output gap.

These parameters suggest that in the decade before the pandemic, Latin American central banks were already following a balanced strategy, that is, a reaction function that placed

⁹ This specification follows that in Mohanty and Klau (2004), who in turn referenced Taylor (2001). Somewhat similar approaches to estimating Taylor rules for EMEs are found in Takats (2012), Vegh and Vuletin (2012), and Vegh et al. (2017).

significant weight on stabilizing output as well as inflation. Moreover, the coefficient on the change in the real exchange rate is (literally) zero, suggesting that even well before the pandemic, the region's central banks were not responding to movements in the currency, once inflation and output were taken into account.

Table 1: Empirical Taylor rules for Latin America

	Dependent variable: Policy interest rate		
	2007 Q1 – 2019 Q4	1998 Q4 – 2019 Q4	2007 Q1 – 2022 Q1
	(1)	(2)	(3)
Headline CPI inflation (year-over-year)	0.13 *** (0.03)	0.17 *** (0.06)	0.13 *** (0.03)
Real GDP output gap (percent deviation)	0.12 *** (0.03)	0.15 * (0.08)	0.12 *** (0.03)
Lagged policy rate	0.90 *** (0.03)	0.64 *** (0.04)	0.91 *** (0.02)
Percent change in real ex. rate	0.00 (0.01)	-0.10 *** (0.03)	0.00 (0.01)
Pandemic*Inflation			0.18 ** (0.09)
Pandemic*Output gap			-0.07 * (0.04)
Pandemic*Lagged policy rate			-0.00 (0.06)
Pandemic*Exchange rate			0.02 (0.02)
Num. obs.	260	424	305
R ²	0.98	0.91	0.98
Number of countries	5	5	5
Number of quarters	52	85	61

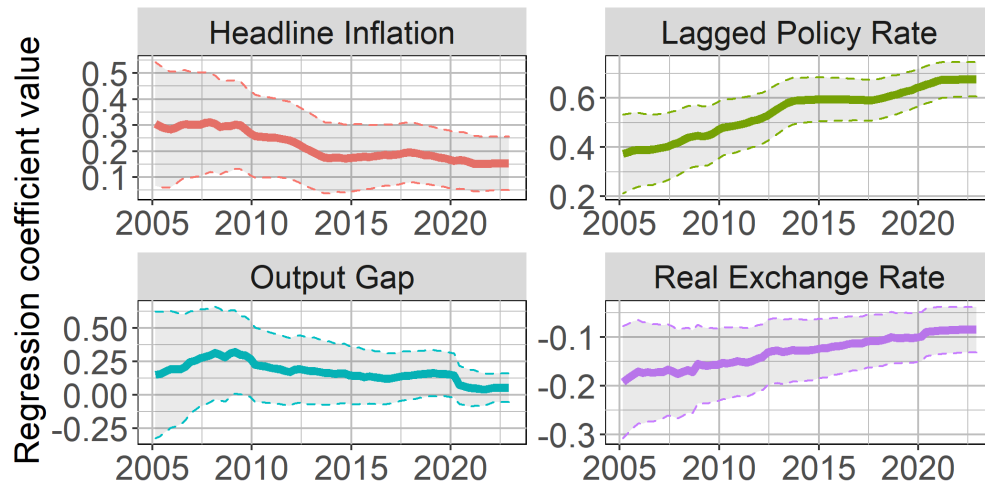
p < 0.1 *, p < 0.05 **, p < 0.01 ***

Note: Quarterly panel regression for Brazil, Chile, Colombia, Mexico, and Peru. Dependent variable is the last daily observed policy rate in each quarter. Exchange rate variable is quarter-to-quarter percent change in quarter-average of real multilateral exchange rate (an increase indicates appreciation). Pandemic is a dummy variable equal to 1 for 2020 Q1 through 2022 Q1, and 0 otherwise. Data are from the Bank for International Settlements (2021) and CEIC. Includes time and country fixed effects, and robust standard errors are in parentheses.

How do we square this evidence with the fact, depicted in Figure 1, that Latin American central banks responded to exchange rate depreciation after the Lehman Brothers bankruptcy by hiking rates, despite the contractionary environment? We believe this development took place during a period when Latin American central banks were transitioning from their prior regime—in which countercyclical policy was not possible in the face of sharp movements in currencies and inflation—to their current flexible inflation targeting stance. Evidence for that is provided in column 2, where the starting date for the regression has been moved back to 1998, before any of the central banks adopted inflation targeting. This regression shows a (very) slightly greater weight being placed on inflation relative to output. More importantly, the coefficient on the real exchange rate is now negative and statistically significant, indicating that central banks did raise rates in response to real exchange rate depreciation (that is, declines in the currency) in the earlier part of the estimation period.

The evolution of the Latin American central banks' reaction function may be more directly observed in Figure 8 below. The figure shows the estimated coefficients and 95 percent confidence intervals as the Taylor rule is estimated for 1998 Q4 through 2005 and then progressively expanded through to the present. The coefficient on inflation declines steadily through the entire time span, but the effect on the long-run coefficient is largely offset by the rise in the coefficient on the lagged interest rate – in essence, Latin American central banks did more interest rate smoothing later in the period. The most dramatic change is in the response to the real exchange rate, which shrinks substantially over the period.

Figure 8: Recursive coefficient estimates for Latin American reaction function



*Panels display coefficients estimated over period starting in 1998 Q4 and ending in quarter indicated on the x-axis.
Grey areas represent 95% confidence intervals.*

It is beyond the scope of this paper to fully explain these shifts in monetary strategy, but a number of factors likely played a role, including: reduced fiscal deficits that allowed monetary policy greater room for maneuver; shifts in international borrowing from short-term bank financing to longer-term bond finance, which reduced vulnerability to volatile exchange rates and capital flows; adoption of inflation targeting; and greater central bank independence.¹⁰

All told, it appears that Latin American central banks had fully “graduated” to a balanced approach to inflation and output by the time the pandemic recession hit. Accordingly, their initial rapid response to the crisis was not a substantial break from the recent past. However, that is not to say that their policy reaction function remained unchanged over the course of the pandemic. Column 3 of Table 1 extends the estimation sample to 2022 Q1 and adds interaction terms: a dummy variable for the period 2020 Q1 through 2022 Q1 multiplied by the explanatory variables. Surprisingly, as far as explaining the rapid response of Latin American

¹⁰ See, among others, Aguilar and Cantu (2020), Gelos et al. (2020), Giraldo and Turner (2021), McGettigan et al. (2013), and Vegh and Vuletin (2016).

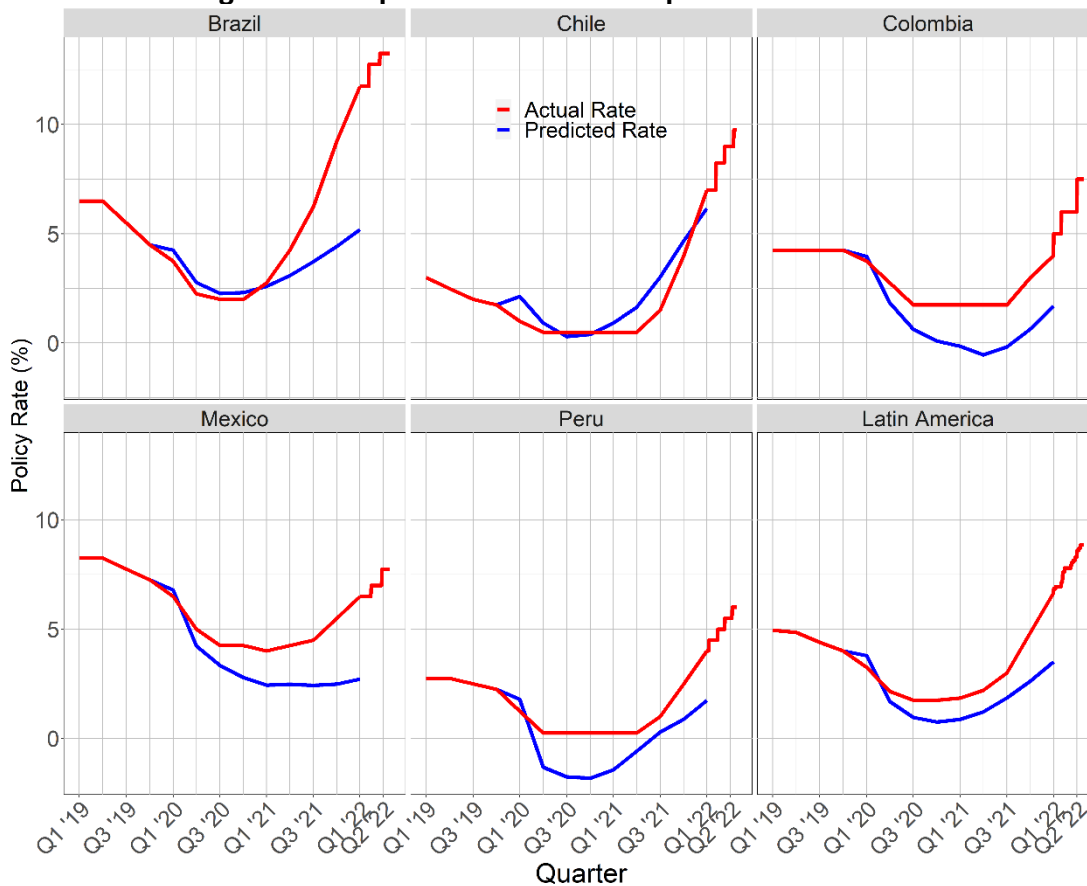
central banks to the pandemic recession, the coefficients on some of the interaction terms are the “wrong” sign: during the pandemic, the coefficient on output appears to have declined substantially and the coefficient on inflation appears to have more than doubled, a statistically significant increase.

Figure 9 below helps us understand where these results are coming from: the path of actual policy interest rates in each of the jurisdictions is compared to the path predicted by the model shown in Column 1. Focusing on the initial recession phase of the pandemic, the model tracks the decline in Brazilian and Chilean policy rates reasonably well, but the model predicts larger declines than occurred in Peru, Colombia, and Mexico.¹¹ But the greater source of deviation from predicted rates was in the later response to inflation, where Latin American central banks tightened policy much more sharply than would have been consistent with the model.¹²

¹¹ Appendix Figure 1.1 compares actual and predicted interest rates, when the latter are based on country-specific regressions. The results are broadly similar, except that the predicted path of Brazilian and Chilean interest rates now lies closer to their actual paths in 2021, while those for Mexico and Colombia exhibit greater deviations.

¹² Note that predicted interest rates are shown through 2022 Q1, based on availability of data for GDP, whereas actual interest rates extend through 2022 Q2.

Figure 9: Comparison of actual and predicted interest rates



Sources: Bank for International Settlements; CEIC
 Note: Predicted rates based on dynamic simulation of equation shown in Table 1, column 1, with intercept and country fixed effects set to zero. In Latin America panel, actual and predicted rates are the mean average of the country-specific rates shown in the other five panels.

Does this mean that Latin American central banks have taken a permanent step backwards, to a period, even preceding the samples shown in Table 1, when monetary policy could not afford to be countercyclical because of the unanchored behavior of inflation expectations and investor sentiment? We doubt that. Instead, we think it likely that the model, estimated over a lengthy and (for the most part) more normal period, may not provide a good guideline for how Latin American central banks would react in response to a downturn of unprecedented depth and longevity, followed immediately by an inflationary surge of equally dramatic proportions (see charts in Appendix 2).

Focusing first on the response to recession, Peru, of course, was constrained by the zero lower bound. The central banks of Colombia and Mexico could have cut rates further, but having already loosened policy to a historically unprecedented extent, most of their boards apparently believed they had already provided a great deal of monetary stimulus. Brazil and Chile actually cut rates in line with the model predictions. And most of these countries, with the prominent exception of Mexico, augmented their rate cuts with asset purchases and other liquidity facilities.

Turning to the later phase of the pandemic, in Latin America, as in many other parts of the world, inflation surged to its fastest pace in a couple of decades. On top of that, fiscal deficits in the region had widened dangerously while the pandemic seemed likely to persistently restrain the growth of productive capacity. Finally, global interest rates were set to rise as central banks in advanced economies struggled to contain their own inflationary surges. All of these developments increased the risk of capital flight and an unanchoring of inflation expectations, and thus led Latin American central banks to tighten more sharply than was predicted by a Taylor-rule model estimated during more tranquil times.

IV. Conclusion

This paper assesses Latin American monetary policy during the pandemic era against the benchmark of a “balanced” monetary policy strategy, that is, a strategy in which policies respond both to deviations of economic activity from some equilibrium level as well as deviations of inflation from target. Such a strategy requires entails countercyclical responses to economic shocks, an approach that emerging market central banks, including those in Latin America, had found difficult to implement in earlier decades but which they had embraced

more recently. Our paper is one of very few to evaluate Latin American monetary policy since the advent of the pandemic, and the only one we are aware of to assess that policy using an empirically-estimated central bank reaction function.

We first review the evolution of Latin American monetary policy as it responded first to the pandemic recession and then to a rapid surge in inflation. Central banks in the five major inflation-targeting economies—Brazil, Chile, Colombia, Mexico, and Peru—cut rates sharply in the face of steep currency depreciations in early 2020, contrasting with their behavior during the GFC, and then they kept rates low despite substantial recoveries of output in the second half of 2020 and even initial increases in inflation. However, by the middle of 2021, Latin American central banks started raising rates aggressively, even as output continued to languish in some economies. And their rate hikes exceeded those of other EME central banks, conditioned on the rise in inflation and inflation forecasts.

The paper then compares Latin American monetary policy during the pandemic period to its behavior in previous years. To do so, we first estimate a panel-regression Taylor rule for the five central banks over the period 2007 to 2019. We find that in the years immediately preceding the pandemic, Latin American central banks had been responding in a balanced and countercyclical manner to both inflation and output, had been substantially smoothing their policy-rate movements, and had not been responding separately to movements in exchange rates. We then extend the estimation of the Taylor rule through 2022 Q1 and show that the coefficient on inflation rose substantially and significantly, while the coefficient on output shrank. This shift is confirmed when we compared the evolution of actual policy interest rates during the pandemic period to the predictions of the model, estimated through 2019: policy

rates generally fell less than predicted by the model in 2020 and then rose more than predicted in late 2021 and early 2022.

Our findings could be interpreted to mean that Latin American central banks have abandoned years of balancing concerns about inflation and output in favor of a strategy focused solely on fighting inflation. But we believe it more likely that the model, estimated over a more normal period (for the most part), simply may not provide a good guideline for how Latin American central banks would (or should) react in response to a downturn of unprecedented depth and longevity, followed by an inflationary surge of equally dramatic proportions. Indeed, the unusually rapid tightening of Latin American monetary policy seems reasonable in light of developments outside the standard Taylor rule model: the expansion of fiscal deficits and debt in the region; the drag on supply from pandemic scarring; and the extraordinary rise in global interest rates. Accordingly, while this is highly uncertain, our best guess is that if and when the reverberations of the pandemic die out, Latin American monetary policy will revert to its prior balanced strategy.

References

Aguilar, A. and Cantu, C. (2020), “Monetary policy response in emerging market economies: why was it different this time?” *BIS Bulletin*, No. 32, November.

Ayres, J., Neumeier, P.A., and Powell, A. (2021), “Monetary policy through COVID-19: Pushing on a string—the case of Latin America and the Caribbean,” VOXEU.org, July.

Cavallo, E. and Powell, A., coordinators (2021), *Opportunities for Stronger and Sustainable Postpandemic Growth*, Inter-American Development Bank.

Coulibaly, B. (2012), “Monetary Policy in Emerging Market Economies: What Lessons from the Global Financial Crisis?” Board of Governors of the Federal Reserve System, International Finance Discussion Papers, No. 1042, February.

De Gregorio, J. (2019), "Inflation Targets in Latin America," Peterson Institute for International Economics, Working Paper 19-19, November.

Gelos, G., Rawal, U., and Hanqing, Y. (2020), "Covid-19 in emerging markets: Escaping the monetary policy procyclicality trap," VOXEU.org, August.

Giraldo, I. and Turner, P. (2021), "Abundant global liquidity: the dollar debt of companies in Latin America," mimeo, December.

International Monetary Fund (2020), "Chapter 2. Emerging and Frontier Markets. A Greater Set of Policy Options to Restore Stability," in *Global Financial Stability Report*, October.

McGettigan, D., Moriyama, K., Ntsama, J.N.N., Painchaud, F., Qu, H., and Steinberg, C. (2013), "Monetary Policy in Emerging Markets: Taming the Cycle," International Monetary Fund, IMF Working Paper WP/13/96, May.

Mohanty, M.S. and Klau, M. (2004), "Monetary policy rules in emerging market economies: issues and evidence," Bank for International Settlements, BIS Working Papers, No. 149, March.

Perez Caldentey, E. and Vernengo, M. (2019), "The Historical Evolution of Monetary Policy in Latin America," in S. Battilossi et al. (eds), *Handbook of the History of Money and Currency*, Springer Nature Singapore Pte Ltd., 2019.

Takats, E. (2012), "Countercyclical policies in emerging markets," *BIS Quarterly Review*, June.

Vegh, C.A., and Vuletin, G. (2012), "Overcoming the Fear of Free Falling: Monetary Policy Graduation in Emerging Markets," National Bureau of Economic Research, NBER Working Paper No. 18175, June.

Vegh, C.A., and Vuletin, G. (2016), "To be countercyclical or not? That is the question for Latin America," VOXEU.org, February.

Vegh, C.A., Moreno, L., Friedheim, D., and Rojas, D. (2017), *Between a Rock and a Hard Place: The Monetary Policy Dilemma in Latin America and the Caribbean*, The World Bank, LAC Semiannual Report, October.

World Bank (2021), "Chapter 4. Asset Purchases in Emerging Markets: Unconventional Policies, Unconventional Times," in *Global Economic Prospects*, January.

Appendix 1: Additional Tables

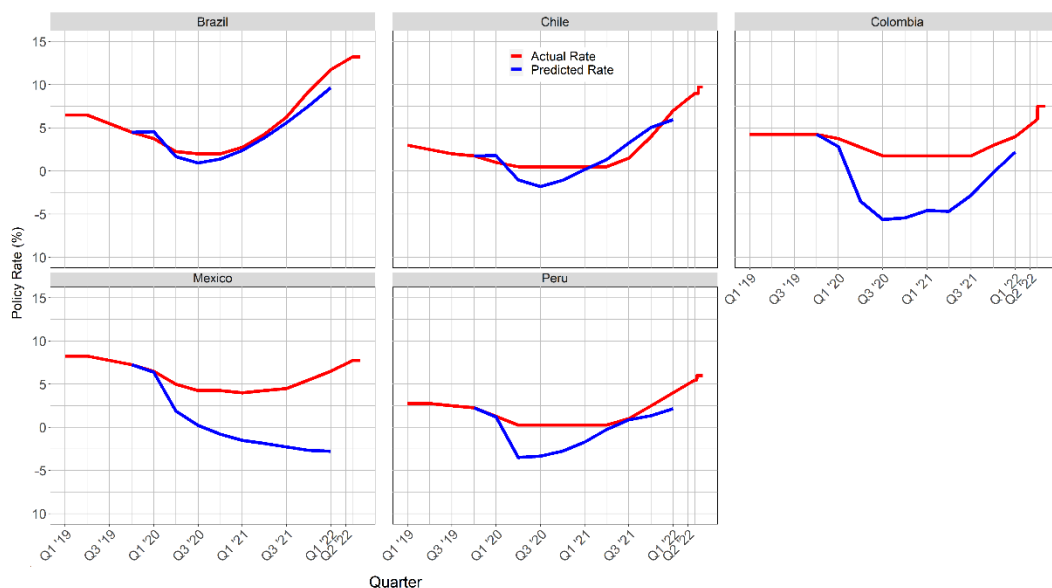
Appendix Table 1.1: Country-specific empirical Taylor Rules, Q1 2007 – Q4 2019

	Policy rate				
	Brazil (1)	Chile (2)	Colombia (3)	Mexico (4)	Peru (5)
Headline CPI inflation (year-over-year)	0.28 *** (0.06)	0.16 ** (0.07)	0.25 *** (0.06)	0.06 (0.06)	0.16 * (0.08)
Real GDP output gap (percentage deviation)	0.28 *** (0.05)	0.21 *** (0.07)	0.34 *** (0.05)	0.21 *** (0.03)	0.17 *** (0.04)
Lagged policy rate	0.94 *** (0.04)	0.60 *** (0.09)	0.68 *** (0.05)	0.90 *** (0.03)	0.71 *** (0.09)
Quarterly percent change in real exchange rate	0.01 (0.02)	-0.06 (0.04)	0.03 ** (0.01)	-0.00 (0.01)	-0.02 (0.04)
Num. obs.	52	52	52	52	52
R ²	0.95	0.80	0.96	0.97	0.84
Number of quarters	52	52	52	52	52

p < 0.1 *, p < 0.05 **, p < 0.01 ***

Note: Regressions use quarterly data. Dependent variable is the last daily observed policy rate in each quarter. Exchange rate variable is quarter-to-quarter percent change in quarter-average of real multilateral exchange rate (an increase indicates appreciation). Data are from the Bank for International Settlements (2021) and CEIC.

Appendix Figure 1.1: Comparison of actual and predicted interest rates, individual regressions



Sources: Bank for International Settlements; CEIC

Note: Predicted rates based on country-specific dynamic simulations of equations shown in Appendix Table 1.1

Appendix Table 1.2: Empirical Taylor Rules, Latin America, using core inflation

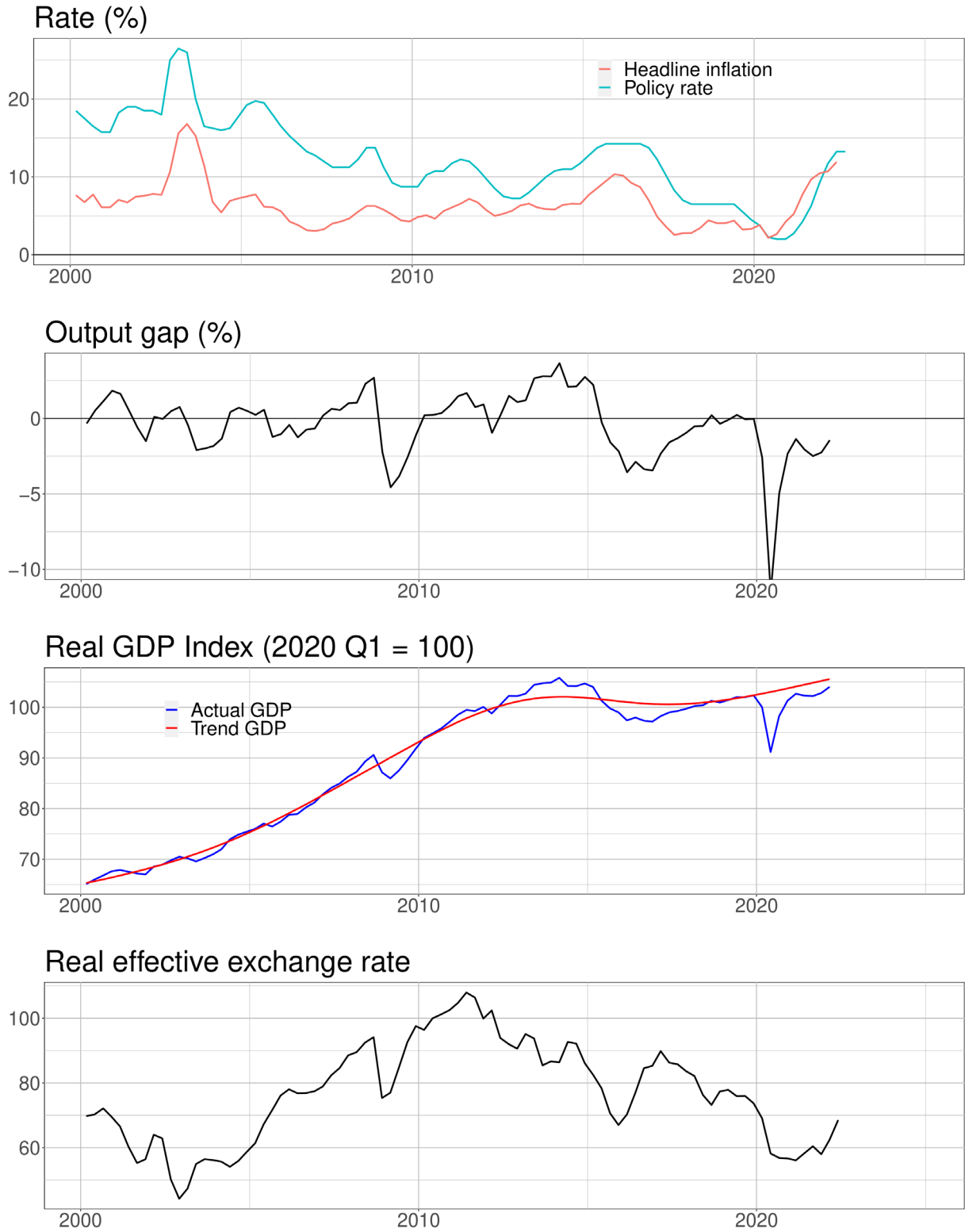
	Dependent variable: Policy interest rate		
	2007 Q1 – 2019 Q4	1998 Q4 – 2019 Q4	2007 Q1 – 2022 Q1
	(1)	(2)	(3)
Core CPI inflation (year-over-year)	0.08 * (0.04)	0.19 *** (0.06)	0.08 ** (0.04)
Real GDP output gap (percentage deviation)	0.12 *** (0.03)	0.11 (0.08)	0.12 *** (0.03)
Lagged policy rate	0.93 *** (0.03)	0.63 *** (0.04)	0.91 *** (0.03)
Quarterly percent change in real exchange rate	0.01 (0.01)	-0.09 *** (0.03)	0.01 (0.01)
Pandemic*Inflation			0.35** (0.15)
Pandemic*Output gap			-0.08 ** (0.04)
Pandemic*Lagged policy rate			-0.10 (0.09)
Pandemic*Exchange rate			0.02 (0.02)
Num. obs.	260	418	305
R ²	0.98	0.90	0.98
Number of countries	5	5	5
Number of quarters	52	85	61

p < 0.1 *, p < 0.05 **, p < 0.01 ***

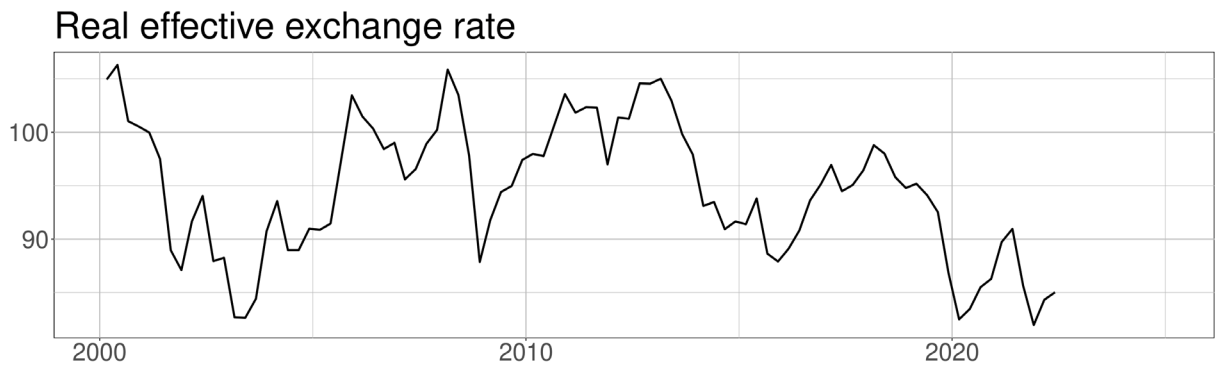
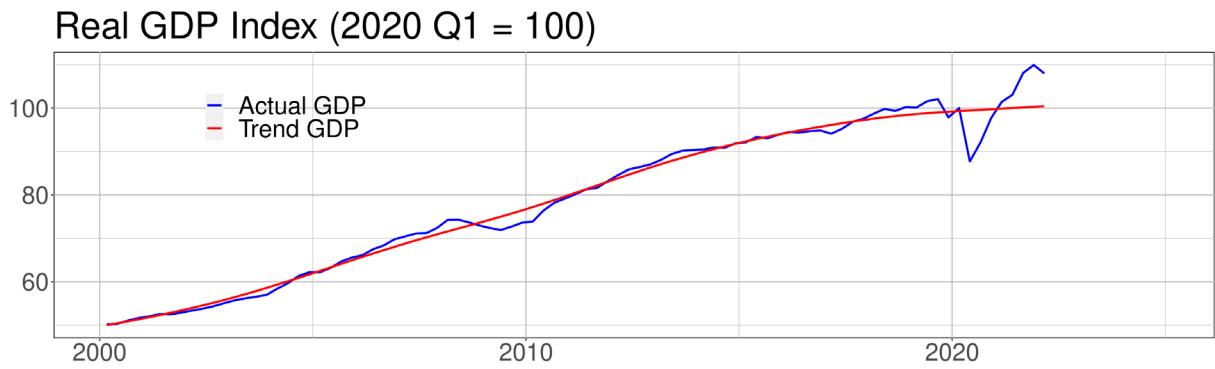
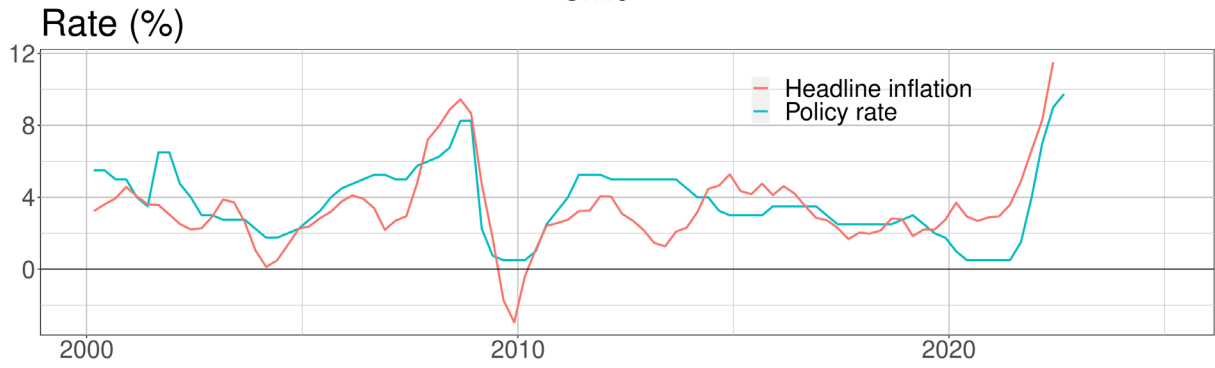
Note: Quarterly panel regression for Brazil, Chile, Colombia, Mexico, and Peru. Dependent variable is the last daily observed policy rate in each quarter. Exchange rate variable is quarter-to-quarter percent change in quarter-average of real multilateral exchange rate (an increase indicates appreciation). Pandemic is a dummy variable equal to 1 for 2020 Q1 through 2022 Q1, and 0 otherwise. Data are from the Bank for International Settlements (2021) and CEIC. Includes time and country fixed effects, and standard errors are in parentheses.

Appendix 2: Basic Data

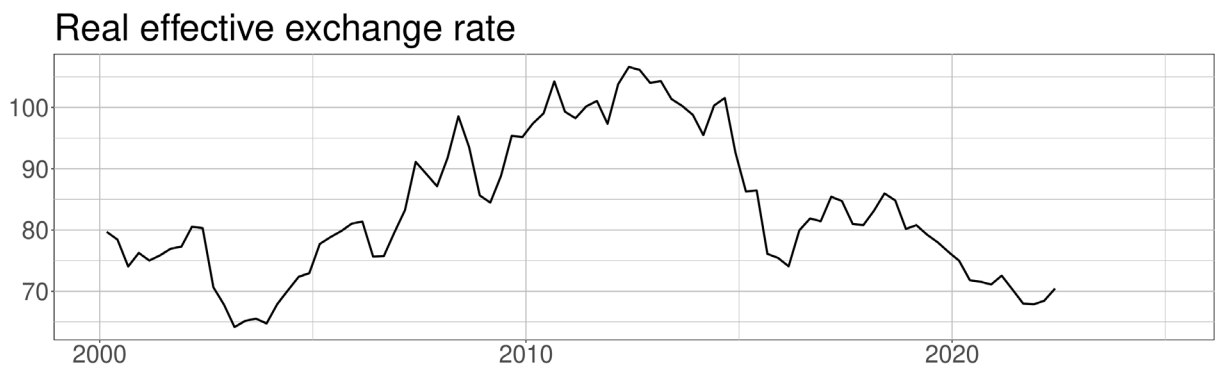
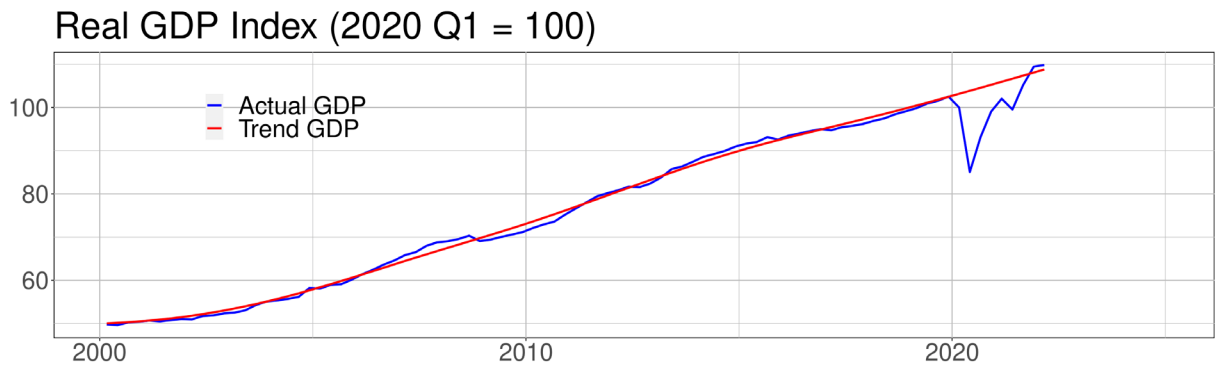
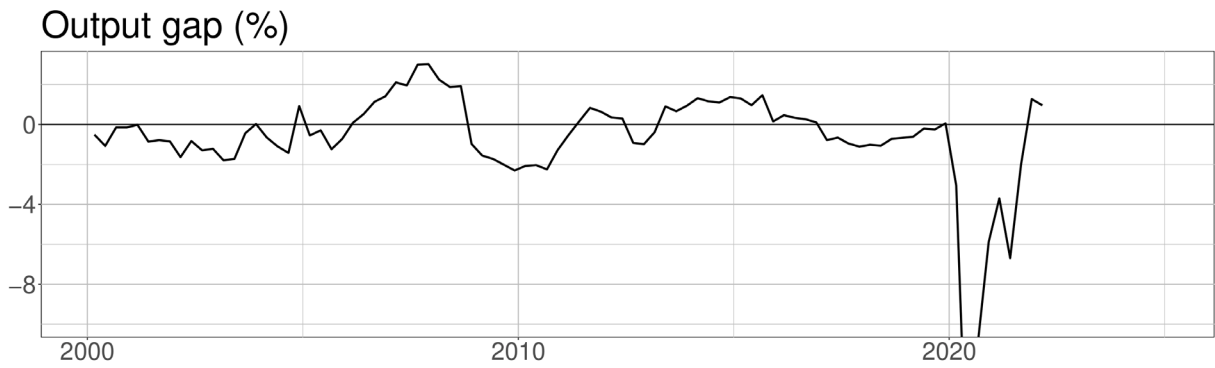
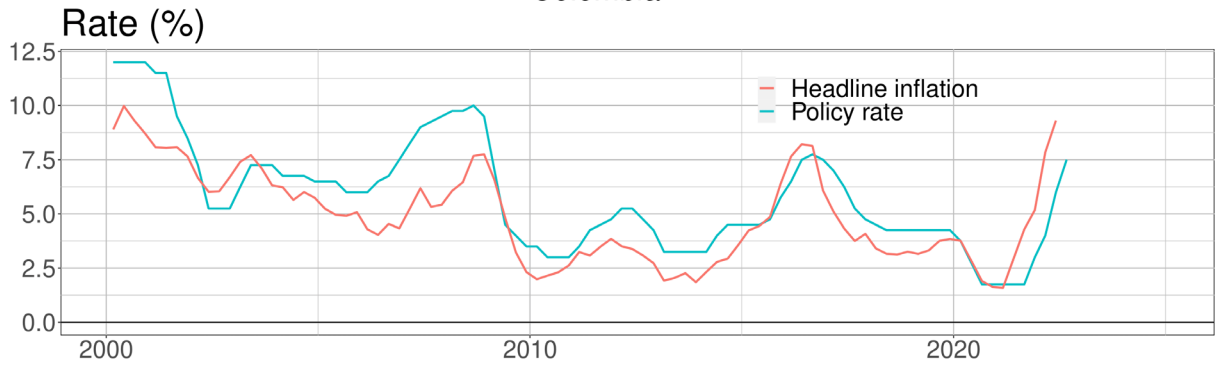
Brazil



Chile

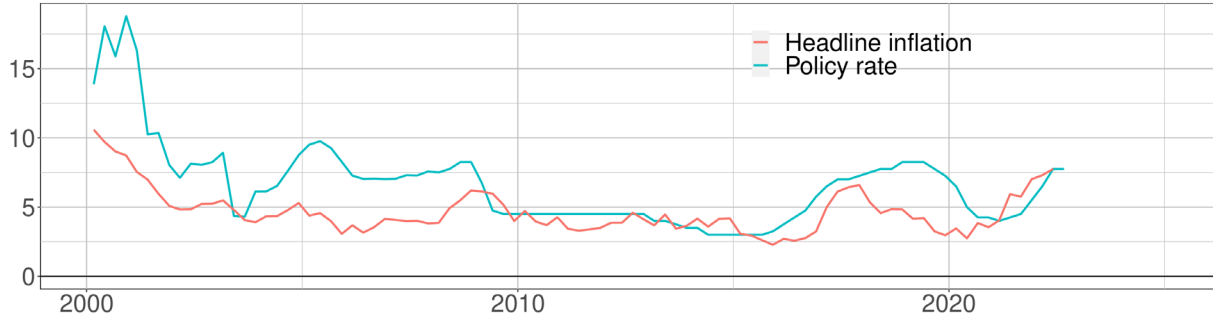


Colombia

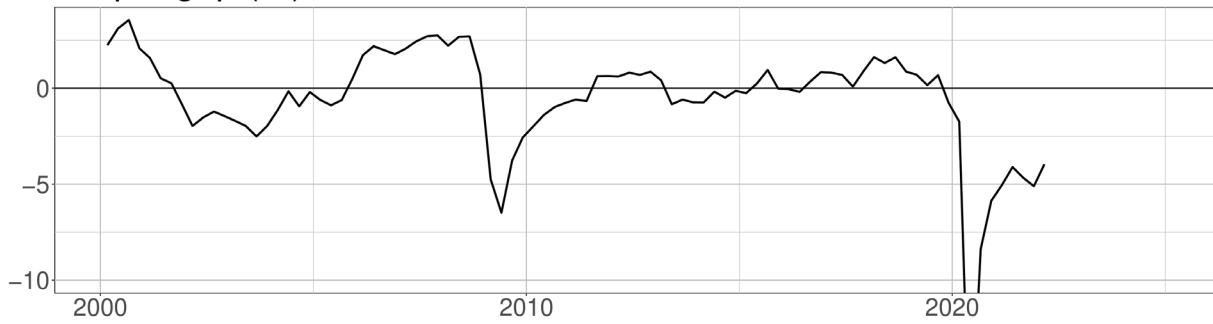


Mexico

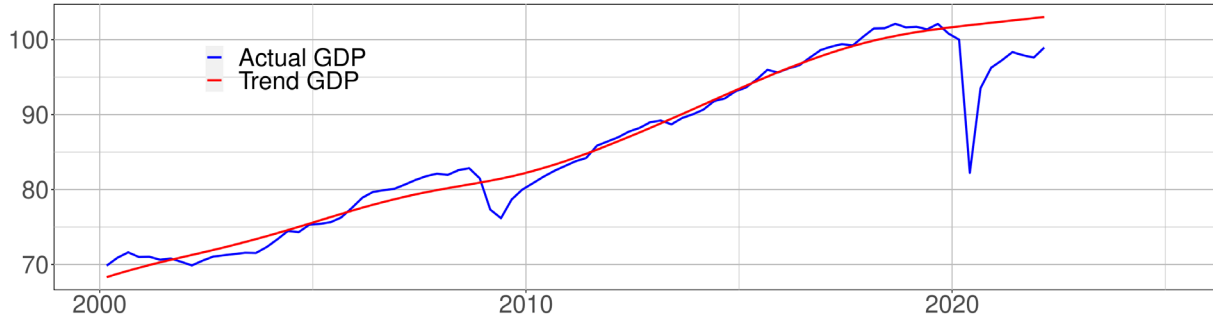
Rate (%)



Output gap (%)



Real GDP Index (2020 Q1 = 100)

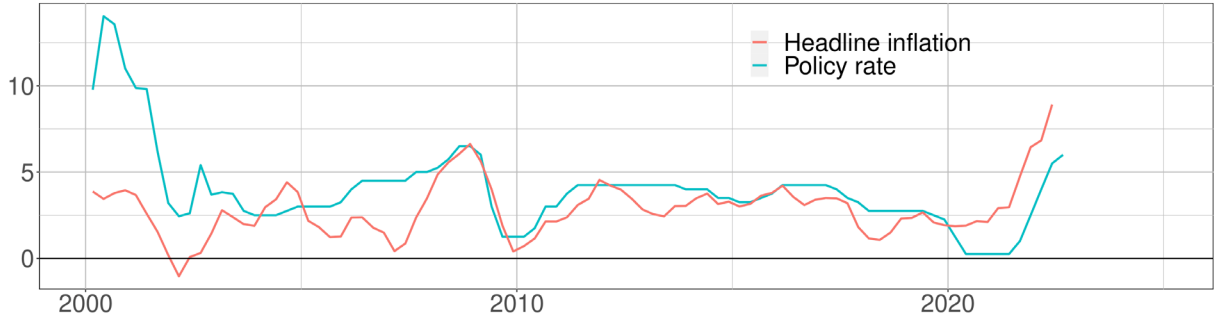


Real effective exchange rate

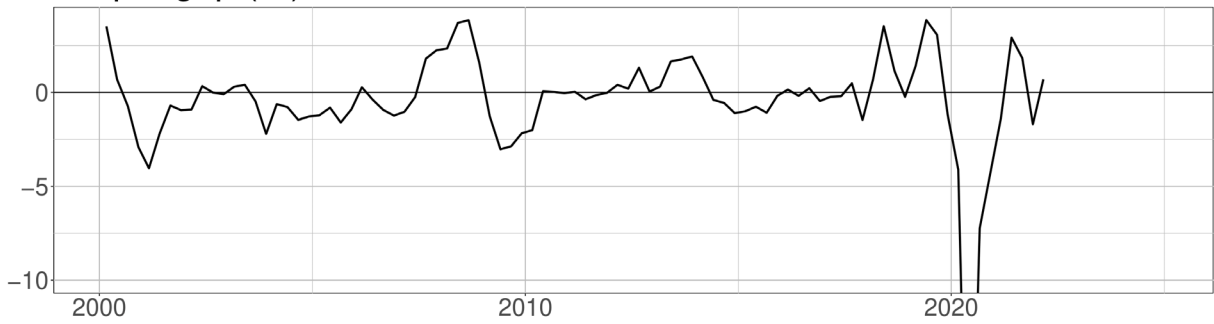


Peru

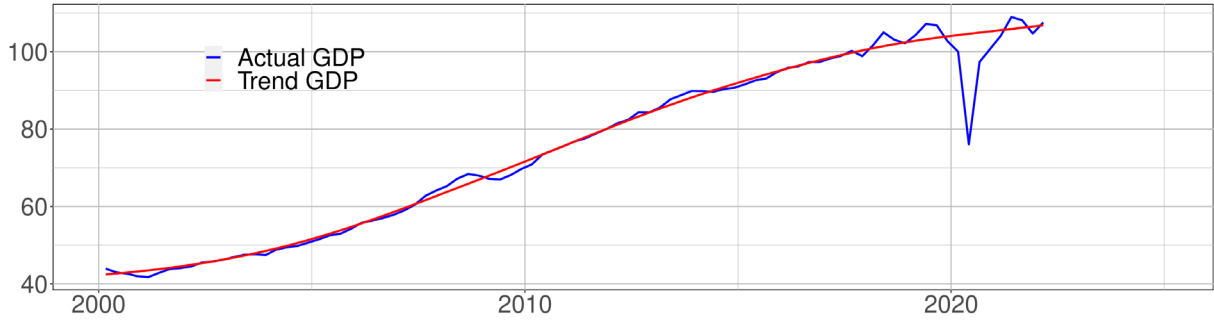
Rate (%)



Output gap (%)



Real GDP Index (2020 Q1 = 100)



Real effective exchange rate

