PIIE PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS

WORKING PAPER

25-7 The Role of Long Histories of "Lived Experience" in the COVID-Era Inflationary Surge

Joseph E. Gagnon and Steven Kamin

April 2025

ABSTRACT

A rough consensus has evolved around the causes of the COVID-era inflationary spike: the disruption in supply chains; the shift in demand from services to goods; the surge in commodity prices that followed Russia's invasion of Ukraine; and the pandemic fiscal stimulus programs. In this paper, we highlight an additional factor influencing the incidence of pandemic inflation across countries—their long histories of "lived experience" with inflation. We show that more than half of the variation in inflation across countries during the 2020–23 period can be explained by their earlier levels of inflation. Even controlling for inflation in the 2016–19 period, countries with higher inflation in the 2000–2015 period had higher COVID-era inflation, and the effect of long-lagged inflation is both economically and statistically significant. These long histories of lived experience dominated other policy measures to control inflation, including inflation targets and central bank independence. The influence of long-lagged inflation history appears to be greatest during periods of heightened volatility; it was less important in explaining the cross-country pattern of inflation during the more tranquil period immediately preceding the pandemic.

JEL Codes: E30, E31

Keywords: inflation, expectations, pandemic

Joseph E. Gagnon is senior fellow at the Peterson Institute for International Economics.

Steven Kamin is senior fellow at the American Enterprise Institute.

The authors thank Asher Rose and Aatman Vakil for very capable assistance. They also thank Olivier Blanchard, Menzie Chinn, Patrick Honohan, Maury Obstfeld, David Reifschneider, and John Roberts for helpful comments. All errors and opinions are the authors' own and their views do not necessarily reflect those of the American Enterprise Institute, the Peterson Institute, or other members of their management and research staffs.

Note: This Working Paper is part of a series titled Understanding the COVID Era Inflation. PIIE gratefully acknowledges the financial support from a donor who wishes to remain anonymous for the research presented in this Working Paper. The research was conducted independently; funders are never given the right to review a publication before its release.

The further back I look, the further forward I can see.
—Winston Churchill

INTRODUCTION

This paper shows how long histories of "lived experience" with inflation influenced the cross-country incidence of the COVID-era inflationary surge. That surge was the most important monetary event since the 2007-09 global financial crisis. Inflation soared around the world, reaching a 40-year high in advanced economies, challenging financial markets, fiscal authorities, and central banks that had largely failed to foresee this development. Out of an extremely large and growing body of research, a rough consensus has evolved around the causes of the inflationary spike: the disruption in global and domestic supply chains triggered by COVID; the shift in demand from services to goods also caused by the pandemic; the surge in commodity prices that followed Russia's invasion of Ukraine; and the support to aggregate demand stemming from COVID-era fiscal stimulus programs.[1]

Despite the pivotal role of expectations in our theories of inflation, studies generally find that widely used measures of inflation expectations were not a factor propelling COVID-era inflation higher. Surveys of long-term inflation expectations remained stable in the face of the spike in prices, militating against the emergence of a wage-price spiral that many had feared during the initial stages of the inflationary surge.[2] And once the supply-side disruptions had eased, the subsequent disinflation was credited in part to well-anchored inflation expectations. As Fed

[1] See Gagnon and Rose (2024) for a summary of the voluminous research on the sources of COVID-era inflation as of early 2024. Additional studies not covered in their article include Aguilar, Guerra, and Martinez (2024), Bloesch (2024), di Giovanni et al. (2024), Dynan and Elmendorf (2024), Fatás (2024), Giannone and Primiceri (2024), Hsu (2024), IMF (2022, 2024), Kamin, Kearns, and Strain (2022), Kamin and Kearns (2022), Kamin and Roberts (2024), and Reifschneider (2024).

[2] Measures of short-term inflation expectations did rise after inflation took off, but they did not anticipate inflation to any notable extent.

Chairman Jerome Powell noted in 2024, "All told, the healing from pandemic distortions, our efforts to moderate aggregate demand, and the anchoring of expectations have worked together to put inflation on what increasingly appears to be a sustainable path to our 2 percent objective."[3]

But there is more to this story than just that inflation expectations remained anchored, helping to bring inflation down. Differences in inflation expectations across countries, rooted in their differing historical experiences, were a critical factor explaining why some countries experienced greater price pressures than others. Figure 1 plots average consumer price index (CPI) inflation rates during 2020-23 (the Y axes) against average inflation rates during the years 2000-2009 (the X axes), more than a decade earlier.[4] It shows a wide range of inflation outcomes across countries in the 2020-23 period, and perhaps surprisingly, much of that variation is explained by differences in those countries' long past inflation rates.

Moreover, not only does long-ago inflation explain much of the cross-country variation in the levels of COVID-era inflation, but it also helps to explain why inflation rose more from pre-pandemic levels in some countries than in others. In figure 2, the Y axes plot the change in average inflation between the four years before COVID and the four years after. As before, the X axes plot the average level of inflation from 2000 through 2009. Inflation increased almost everywhere after 2020, evidenced by the fact that more than 85 percent of the observations are above the zero lines of the Y axes. But the increases generally were larger in economies that had higher inflation a long time ago.

The effect of long past inflation illustrated above has not been emphasized in earlier studies of COVID inflation, and it sheds important light on the inflationary process. Figures 1 and 2, of

[3] Speech presented at the 2024 Jackson Hole Symposium. Available at https://www.federalreserve.gov/newsevents/speech/powell20240823a.htm.
[4] Data are described in appendix B. These figures and the regression results below exclude economies in which average inflation in 2020-23 or 2000-19 exceeds 25 percent. The excluded economies are Angola, Argentina, Belarus, Democratic Republic of the Congo, Eritrea, Ethiopia, Haiti, Iran, Kuwait, Lebanon, Sierra Leone, Somalia, South Sudan, Sudan, Suriname, Turkey, Venezuela, and Zimbabwe.

course, merely show simple bilateral correlations. The rest of this paper uses regression analysis to explore the impact of long past inflation in models that allow for other forces on inflation. We find that even controlling for 2016-19 inflation and other factors, inflation in the preceding 2000-2015 period retains a strong and statistically significant correlation with 2020-23 inflation. This suggests that inflation expectations are deeply rooted in the "lived experience" of households, workers, and firms. In consequence, when the pandemic shocks hit, countries with long histories of low inflation (e.g., Japan, Switzerland) showed more muted responses than countries with histories of much higher inflation (Ghana, Latvia, Pakistan).

These long histories of lived experience are so important that they dominate other policy measures to control inflation. Adding inflation targets and measures of central bank independence to our regression equations adds little explanatory power, and the lags of inflation remain highly significant. It is apparent that central banks influence inflation expectations through the cumulative effect of their policies on inflation history rather than through any fast-acting effects of central bank communications, governance, or targets.

The influence of long-lagged inflation history appears to be greatest during periods of heightened volatility. During the tumultuous environment of the COVID era, as global shocks pushed inflation well above inflation targets, central banks appear to have (at least temporarily) lost their ability to control inflation behavior and expectations—they were supplanted by the ingrained psychology of households, workers, and firms stemming from decades of their inflationary experience. Conversely, when we reestimate our models of inflation in the immediate pre-COVID era (2016-19), we find that the effect of the longest-lagged inflation (1996-2011) is diminished relative to that of more recent inflation (2012-2015), though it often remains statistically significant.

We also examine long-term inflation expectations embodied in bond yields and in surveys of professional economists. Like actual inflation, bond yields were strongly correlated with long past inflation in 2020-23 and more weakly correlated in 2016-19. The effect of long past inflation is weakest in surveys of long-term inflation projections by professional forecasters. Moreover, survey measures of inflation expectations had no ability to explain differences in pandemic inflation across countries, controlling for inflation histories. We surmise that the inflation expectations of professional economists may deviate from those of actual price-setters and investors to a noticeable extent, particularly during times of heightened uncertainty. This may be because professional economists are more reliant on central bank guidance, or, as a related matter, because they are producing modal forecasts that ignore upside risks to inflation such as have materialized in the distant past.

This paper adds to a very small body of earlier research showing that inflation expectations may be influenced by inflation experiences going back many years, and even generations (Gagnon 2008; Malmendier and Nagel 2016; Braggion et al. 2023). It is also one of very few papers to identify a linkage across countries between initial pre-pandemic levels of inflation and their subsequent rise (Kamin, Kearns, and Strain 2022; Fatás 2024). Finally, it is the only paper we are aware of to show the effect of long past inflation experiences on the global incidence of the COVID-era inflationary surge.

METHODOLOGY

To assess the influence of inflation history on inflation during the COVID era, we estimate the following cross-country regression:

$$INF(2020-23)_i = \alpha + \beta\, INF(2016-19)_i + \gamma INF(2000-15)_i + \delta GAP(2020-23)_i + e_i \quad (1)$$

Average CPI inflation in country *i* during 2020-23 is regressed on a constant, average inflation over the four years before COVID-19, average inflation over 16 years from 2000 through 2015, and the output gap during 2020-23.[5] This is a simple cross-sectional version of an expectations-augmented Philips curve, with the lagged inflation rates intended to capture the influence of inflation history on inflation expectations. As COVID was a global shock hitting all countries, we expect its effects on inflation to be captured by a positive intercept α; of course, the shock hit different countries to varying degrees, reflecting differences in consumption baskets and energy dependence, and those differences will be reflected in the error term e_i.

The coefficients on the lagged inflation variables will test our hypothesis regarding the dependence of inflation expectations on prior history. To the extent that those expectations adjust quickly in response to changes in actual inflation performance, γ should be close to 0. On the other hand, if credibility takes a long time to build up, γ should be greater than 0. In the latter case, even if an economy had experienced low inflation for four years before the pandemic, the inflationary impact of COVID-19 would be larger for economies that had experienced high inflation in the more distant past.

We also consider whether our econometric results are specific to the COVID era or apply with greater generality. Accordingly, we estimate a lagged version of equation (1) on data for the pre-pandemic era:

$$INF(2016-19)_i = \alpha + \beta\, INF(2012-15)_i + \gamma INF(1996-2011)_i + \delta GAP(2016-19)_i + e_i \quad (2)$$

[5] We use four-year averages to capture the overall effect of the pandemic on prices while allowing for moderate differences in the exact timing across countries.

To shed further light on the behavior of inflation expectations, and the ability of central banks to mold those expectations, we add two additional independent variables to both the COVID-era and pre-COVID-era equations, one at a time: (1) each central bank's inflation target as of 2022, and (2) a measure of each country's central bank independence averaged over 2020-23.

Finally, we considered two alternative proxies for inflation expectations: (1) projections of far-forward CPI inflation (6 to 10 years ahead) from Consensus Forecasts' survey of professional forecasters, and (2) 10-year bond yields. These were employed in different ways. First, we added the far-forward survey as a separate explanatory variable to equations (1) and (2), above. Second, we estimated separate equations to explain the far-forward survey and 10-year bond yield during the COVID era as a function of lagged inflation rates, as shown in equations (3) and (4), below:

$$Survey(2020-23)_i = \alpha + \beta\, INF(2016-19)_i + \gamma INF(2000-15)_i + \delta GAP(2020-23)_i + e_i \quad (3)$$

$$Yield(2020-23)_i = \alpha + \beta\, INF(2016-19)_i + \gamma INF(2000-15)_i + \delta GAP(2020-23)_i + e_i \quad (4)$$

RESULTS

Baseline results for COVID-era inflation

Table 1 below presents the results from estimating equation (1). The coefficients on lags of inflation are highly statistically significant, both on more recent lags (2016-19) and, strikingly, on much older lags (2000-2015). These findings are robust to whether prices are measured by CPIs or GDP deflators, as well as to advanced economies or developing economies.[6] These variables, along with

[6] Neither the standard deviation nor the variance of inflation over the previous 20 years is significant when added to any of the regressions in table 1.

the output gap, explain about 60 percent of the variation in inflation across countries during the COVID era. Most of this explanation comes from the lagged inflation variables; in estimations that exclude the output gap (not shown), the coefficients on the inflation terms are similar and the R^2s are nearly as high.

Finally, the intercept terms are highly significant, reflecting the effect of the pandemic shocks themselves. The intercepts are larger in developing economies but the sums of the coefficients on lagged inflation in advanced economies are greater than one—which also helps to explain higher COVID inflation. The average increase in inflation from 2016-19 to 2020-23 was 2.9 percent in advanced economies and 2.3 percent in developing economies (after excluding outliers as described in figure 1).

All told, these results are strong evidence that inflation and inflation expectations depend on much longer histories of inflation than we would have expected. Moreover, as shown in table 2 below, these long lags of inflation remain important even after accounting for inflation targets and the extent of central bank independence. (Table 2 displays results for CPI inflation; results for GDP deflator inflation, not shown, are essentially similar.) The signs and significance of the coefficients on the inflation target are mixed, while those on central bank independence are all positive, the opposite of the expected sign; neither variable adds much explanatory power to the equation. In all three of the samples, the coefficient on long-lagged inflation history (2000-2015) remains statistically significant.

Robustness of the baseline results

It is possible that the statistical significance of the coefficients on long-lagged inflation shown in table 1 reflects the correlation of long-lagged inflation with some other influence on inflation in the pandemic era that has been omitted from the equation. To assess the robustness of our results, we added a long list of additional explanatory variables, one at a time, to the baseline CPI equations in table 1. They include:

- The difference between headline CPI inflation and core inflation; this is intended to control for any correlations between pandemic era non-core inflation (food and energy price rises) and lagged inflation;
- The log of constant-price PPP GDP per capita on average during 2020-23;
- Population growth during 2020-23;
- The change in population growth from 2016-19 to 2020-23;
- The share of the population aged 65+ in 2020-23;
- The government fiscal balance/GDP in 2020-23;
- The change in the government fiscal balance/GDP from 2016-19 to 2020-23;
- The current account balance/GDP in 2020-23;
- The change in the current account balance/GDP from 2016-19 to 2020-23;
- The measure of central bank independence in 2020-23 multiplied by long-lagged inflation; this is intended to test the possibility that when central banks are highly independent, inflation is better-anchored and less influenced by long-lagged inflation.

The results of these estimations are shown in appendix tables A1 (advanced economies) and A2 (developing economies). In every case except the last one listed above, addition of the extra explanatory variable leaves the coefficient on long-lagged inflation to be sizeable. All but one of these sizeable coefficients are statistically significant. In the last case above, the coefficient on long-lagged inflation becomes insignificant, but the coefficient on the interaction term is positive and highly significant for advanced economies. For developing economies, the long lag coefficient is sizeable, and this coefficient and the interaction term are jointly significant at the 1 percent level. These results are inconsistent with the view that central bank independence leaves inflation expectations better anchored, and, again, affirms the importance of long-lagged inflation in influencing pandemic inflation.

Baseline results for the pre-COVID era

To what extent are our findings specific to the COVID era? To address that question, we reestimated the equations in tables 1 and 2, but specifying inflation in the 2016-19 period as the dependent variable. Table 3 replicates table 1, using only lags of inflation and the output gap as explanatory variables. As would be expected, given the absence of a global inflationary shock during this period, the intercept terms are now much smaller and generally not significantly different from zero. The coefficients on the output gap are also smaller, insignificant, or of the incorrect sign; that likely reflects the smaller variation in output gaps across countries compared with the COVID era.[7] Finally, the coefficients on long-lagged inflation (1996-2011) are smaller than estimated for the COVID era (2000-15).[8] The long history of lived experience with inflation appears to weigh more on expectations and pricing decisions during periods of elevated volatility and uncertainty (2020-23) than it does in more tranquil periods (2016-19). In any event, however, the coefficients on both shorter and longer lags of inflation history generally remain highly significant.

Table 4 below replicates the specification in table 2, applied to the pre-COVID era. The coefficients on central bank independence now have the expected negative sign but are not significantly different from zero. The coefficient on the inflation target, however, is now significant and about one for the all-economies and developing-economies samples. For these samples, the addition of the inflation target leads the coefficients on both the near-term and long past lags of

[7] It is also possible that measurement error in the GDP deflator used to construct real GDP introduces a spurious negative correlation between the output gap and GDP inflation. For a given value of nominal GDP, a higher estimate of the GDP deflator raises inflation and reduces real GDP and hence the output gap.

[8] The changes in the long-lagged inflation coefficients from those in table 1 are statistically significant except for GDP inflation in developing economies. Tests are based on joint regressions over both the COVID era and the pre-COVID period allowing all coefficients to change.

inflation to become very small and insignificant. (The lack of significance of the inflation target for the advanced economies likely reflects the lack of variation across countries; the addition of the inflation target has little impact on the other coefficients in the model for this sample.)

The results of tables 3 and 4 suggest that during the tranquil pre-COVID period, central banks were successful in meeting their inflation targets, and those targets reduced the importance of past history as a determinant of inflation and inflation expectations. By comparison, in the tumultuous environment of the COVID era, as global shocks pushed inflation well above inflation targets, these targets lost their traction in guiding inflation behavior and expectations—they were supplanted by the ingrained psychology of households, workers, and firms stemming from decades of their inflationary experience.

Adding survey measures of inflation expectations

Table 5 below adds to the baseline regressions for CPI inflation projections of CPI inflation 6 to 10 years ahead from Consensus Forecasts' survey of professional forecasters (the far-forward survey). Because of the small sample size, we show results only for the all-economies sample; and because of the large difference in sample sizes, which depend on data availability, we show results both with and without inclusion of the survey measure within the same samples. Inclusion of the far-forward survey has little impact on the other coefficients or on the equation R^2. The table shows that neither in the COVID era nor the pre-COVID era did the far-forward surveys have much predictive power for actual inflation.[9] This could be because inflation history is acting on actual inflation through some mechanism other than inflation expectation. However, the more likely explanation is that the

[9] There is a potential endogeneity of the explanatory variable to the extent that higher inflation raises survey expectations of future inflation. Endogeneity would bias the coefficient upward, but since the effect of survey expectations on inflation is also assumed to be positive and the estimated coefficient is not statistically significant, we conclude that neither the hypothesized effect nor the bias is significant.

inflation expectations of professional forecasters are not the same thing as the expectations held by households, workers, and firms, a hypothesis we explore further below.

How inflation history affects surveys of inflation expectations

In table 6 below, we switch the survey measure of inflation expectations from being the explanatory variable to the dependent variable—that is, we seek to explore the determinants of the far-forward survey. We find that surveyed expectations were less sensitive to lagged inflation and more sensitive to inflation targets than actual inflation in the COVID era. Focusing first on columns (1) and (3), the far-forward survey in the COVID era is less affected by short and long lagged inflation than is actual inflation (using the same sample to facilitate comparison), but there are statistically significant small positive impacts of lagged inflation on far-forward surveys. When inflation targets are added (column 2), the effects of lagged inflation fall even closer to zero, though they remain statistically significant. Adding inflation targets to the inflation regression (column 4), on the other hand, yields a negative but insignificant coefficient on the target and little effect on the other coefficients.[10] Appendix table A3 shows that in the pre-COVID period, long-lagged inflation has even smaller (and insignificant) effects on surveys of inflation expectations.

How inflation history affects bond yields

An alternative means of gauging the effect of inflation history on expectations is based on the behavior of long-term bond yields.[11] Table 7 regresses averages of 10-year government bond yields over 2020-23 on recent and long-lagged averages of actual inflation, as well as the auxiliary variables

[10] Note that the output gap coefficients, which are positive in the inflation regressions, are small and negative in the survey regressions, suggesting that the economists surveyed did not expect the existing gaps to have a long-run effect on inflation.

[11] In addition to expectations about future inflation into the distant future, bond yields reflect expectations of future real short-term rates set by monetary policy and a term premium. Yields are highly responsive to current inflation and other macroeconomic developments, making them unsuitable as an explanatory variable in our inflation regressions.

we've reviewed above. Starting with the base case in column (1), as in the case of COVID-era CPI inflation, both recent (2016-19) and earlier (2000-15) lags of inflation are positive and significant, suggesting that the expectations process influencing inflation may be similar to that influencing bond yields.[12] Column (2) shows that average CPI inflation for 2020-23 has little correlation with bond yields, leaving the coefficients on lagged inflation little changed. In other words, bond investors did not expect COVID inflation to persist very long.[13] Column 3 adds central bank inflation targets, which are highly significant with the correct sign; however, the coefficient on the long backward lag of inflation remains sizeable and significant. Finally, the far-forward inflation survey coefficient in column 4 has the wrong sign and is not significant, suggesting that the bond market largely (and perhaps rightly!) ignored the inflation projections of professional economists.[14]

Appendix table A4 repeats the exercise for the pre-COVID era. Similar to what we've found for CPI inflation and far-forward inflation surveys in the 2016-19 period, the importance to bond yields of long-lagged inflation diminishes relative to more recent inflation, whereas all three additional variables—current (2016-19) inflation, inflation targets, and far-forward inflation projections—are statistically significant. These findings reinforce our conclusion that in the more tranquil period of the late 2010s, current inflation, recent inflation, inflation targets, and far-forward surveys of inflation were highly correlated with each other and with long-term inflation expectations in each country. Conversely, in the more volatile and uncertain COVID era, these indicators of inflation expectations moved in different ways, and people looked more to their lived experience of long past inflation as a guide to what the future might hold.

[12] Gagnon (1996) shows that bond yields in the 1980s and early 1990s are correlated across countries with long lags of inflation.
[13] Professional forecasters also did not expect COVID inflation to persist. Adding contemporaneous inflation to the far-forward survey regression of table 6 column 1 yields a coefficient near zero.
[14] The large effects of adding either inflation targets or far-forward surveys on the coefficient on recent inflation suggests some collinearity among these three variables.

CONCLUSION

In normal or tranquil times, central banks generally keep inflation close to its target, and expectations of future inflation are also close to target. The impact of long past inflation on expected inflation is positive but small, though sometimes statistically significant. During turbulent times, people attach less (but not zero) weight to central bank inflation targets but considerably more weight to their experiences of inflation in the distant past. Notably, inflation from 5 to 20 years earlier is a strongly significant predictor of differences in COVID-era inflation across 166 countries.

These conclusions are apparent in estimated statistical models of inflation that are based on measures of inflation history and other factors. They are also apparent in models of bond yields, which are strongly influenced by long-term inflation expectations. Surveys of professional economists' projections of inflation in the distant future offer less (but not zero) support for the role of long past inflation. Professional economists appear more swayed by inflation targets and/or recent inflation than by long past inflation, even in turbulent times. This divergence between the expectations of professional forecasters and economic actors may not be all that surprising: Gagnon (2008) shows that in 2007 long-term inflation projections of professional forecasters were typically close to central bank inflation targets and well below inflation compensation in long-term bond yields. Binder and Kamdar (2022) document that during 2011-2021, inflation forecasts from the Federal Reserve Bank of Philadelphia Survey of Professional Forecasters were negatively correlated with the University of Michigan Survey of Consumer Expectations. Coibion and Gorodnichenko (2015) and Pfajfar and Roberts (2022) also document significant differences between household inflation expectations and professional forecasts, with the former exerting a greater influence on actual inflation than the latter.

Perhaps central bank promises are more convincing to economists than to investors, workers, and firms. A related possibility is that economists are projecting the most likely, or modal, future path of inflation, which may well be close to the central bank's inflation target. However, if the current inflation target is well below the mean of lifetime inflation, a period of heightened uncertainty is likely to be viewed by folks with less "buy in" to central bank guidance as raising more upside risks than downside risks to inflation. In that case, the mean of future inflation (which matters for actual price-setters and investors) will exceed the mode, leading to a greater dependence of actual inflation and bond yields on long past inflation histories.

REFERENCES

Aguilar, Ana, Rafael Guerra, and Berenice Martinez. 2024. *Global inflation, inflation expectations and central banks in emerging markets.* BIS Working Papers No 1217 (October). Basel: Bank for International Settlements.

Binder, Carola, and Rupal Kamdar. 2022. Expected and Realized Inflation in Historical Perspective. *Journal of Economic Perspectives* 36, no. 3: 131–56. Available at https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.36.3.131.

Bloesch, Justin. 2024. *Labor market tightness and inflation before and after the COVID-19 pandemic.* PIIE Working Paper 24-23. Washington: Peterson Institute for International Economics. Available at https://www.piie.com/publications/working-papers/2024/labor-market-tightness-and-inflation-and-after-covid-19-pandemic.

Braggion, Fabio, Felix von Meyerinck, Nic Schaub, and Michael Weber. 2023. *The Long-term Effects of Inflation on Inflation Expectations.* BFI Working Paper (July). Available at https://bfi.uchicago.edu/working-paper/the-long-term-effects-of-inflation-on-inflation-expectations/.

Coibion, Olivier, and Yuri Gorodnichenko. 2015. Is the Phillips Curve Alive and Well after All? Inflation Expectations and the Missing Disinflation. *American Economic Journal: Macroeconomics* 7, no. 1: 197–232.

di Giovanni, Julian, Şebnem Kalemli-Özcan, Alvaro Silva, and Muhammed A. Yıldırım. 2024. *Pandemic-Era Inflation Drivers and Global Spillovers.* Federal Reserve Bank of New York Staff Reports, no. 1080 (July). Available at https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr1080.pdf.

Dynan, Karen, and Douglas Elmendorf. 2024. *Fiscal policy and the pandemic-era surge in US inflation: Lessons for the future.* PIIE Working Paper 24-21. Washington: Peterson Institute for International Economics. Available at https://www.piie.com/publications/working-papers/2024/fiscal-policy-and-pandemic-era-surge-us-inflation-lessons-future.

Fatás, Antonio. 2024. *The Resurgence of Inflation: Why Was Emerging Asia Different?* Hutchins Center Working Paper #97. Washington: Brookings Institution. Available at https://www.brookings.edu/articles/theresurgence-of-inflation-why-was-emergingasia-different.

Gagnon, Joseph. 1996. *Long Memory in Inflation Expectations: Evidence from International Financial Markets.* International Finance Discussion Papers No. 538. Washington: Board of Governors of the Federal Reserve System.

Gagnon, Joseph. 2008. Inflation regimes and inflation expectations. *Federal Reserve Bank of St. Louis Review* 90 (May): 229-243.

Gagnon, Joseph, and Asher Rose. 2024. *The Trinity of COVID Era Inflation in G7 Economies.* PIIE Working Paper 24-21. Washington: Peterson Institute for International Economics. Available at https://www.piie.com/sites/default/files/2024-12/wp24-21.pdf.

Giannone, Domenico, and Giorgio Primiceri. 2024. *The drivers of post-pandemic inflation.* CEPR Discussion Paper No. 19377. Paris: Centre for Economic Policy Research. Available at https://cepr.org/publications/dp19377.

Hsu, Joanne. 2024. *The influence of gasoline and food prices on consumer expectations and attitudes in the COVID era.* PIIE Policy Brief 24-3. Washington: Peterson Institute for International Economics. Available at https://www.piie.com/publications/policy-briefs/2024/influence-gasoline-and-food-prices-consumer-expectations-and.

IMF (International Monetary Fund). 2022. Chapter 2: Wage Dynamics Post-Covid-19 and Wage-Price Spiral Risks. *World Economic Outlook*. (October). Available at https://www.imf.org/en/Publications/WEO/Issues/2022/10/11/world-economic-outlook-october-2022.

IMF (International Monetary Fund). 2024. Chapter 2: The Great Tightening: Insights from the Recent Inflation Episode. *World Economic Outlook*. (October). Available at https://www.imf.org/en/Publications/WEO/Issues/2024/10/22/world-economic-outlook-october-2024.

Kamin, Steven B., John Kearns, and Michael R. Strain. 2022. *Explaining Differences in Pandemic Inflation Across Countries.* AEI Economic Policy Working Paper Series (May). Available at https://www.aei.org/research-products/working-paper/explaining-differences-in-pandemic-inflation-across-countries/.

Kamin, Steven B., and John Kearns. 2022. *Tight Product Markets, Not Tight Labor Markets, Are Pushing Up Inflation Around the World.* AEI Economic Perspectives (September). Available at https://www.aei.org/research-products/report/tight-product-markets-not-tight-labor-markets-are-pushing-up-inflation-around-the-world/.

Kamin, Steven B., and John M. Roberts. 2024. *How Will the Interaction of Wages and Prices Play Out in the Last Mile of Disinflation?* AEI Economic Policy Working Paper Series (July). Available at https://www.aei.org/research-products/working-paper/how-will-the-interaction-of-wages-and-prices-play-out-in-the-last-mile-of-disinflation./

Malmendier, Ulrike, and Stefan Nagel. 2016. Learning from Inflation Experiences. *The Quarterly Journal of Economics* 131 (February): 53–87. https://doi.org/10.1093/qje/qjv037.

Pfajfar, Damjan, and John Roberts. 2022. The Role of Expectations in Changed Inflation Dynamics. *International Journal of Central Banking* 18, no. 1: 199-238.

Ravn, Morten, and Harald Uhlig. 2002. On adjusting the Hodrick-Prescott filter for the frequency of observations. *The Review of Economics and Statistics* 84, no. 2: 371-75.

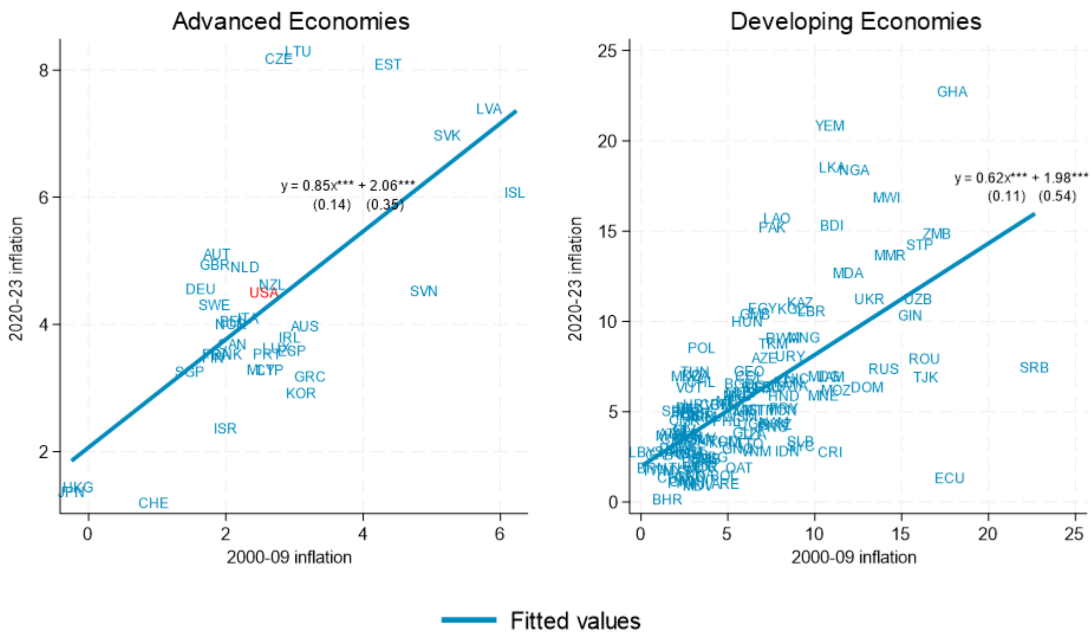
Reifschneider, David. 2024. *US monetary policy and the recent surge in inflation*. PIIE Working Paper 24-13. Washington: Peterson Institute for International Economics. Available at https://www.piie.com/publications/working-papers/2024/us-monetary-policy-and-recent-surge-inflation.

Romelli, Davide. 2022. The political economy of reforms in Central Bank design: evidence from a new dataset. *Economic Policy* 37, no. 112: 641-88.

Romelli, Davide. 2024. *Trends in central bank independence: a de-jure perspective*. BAFFI CAREFIN Research Paper no. 217. Milan: Centre on Economics, Finance and Regulation.

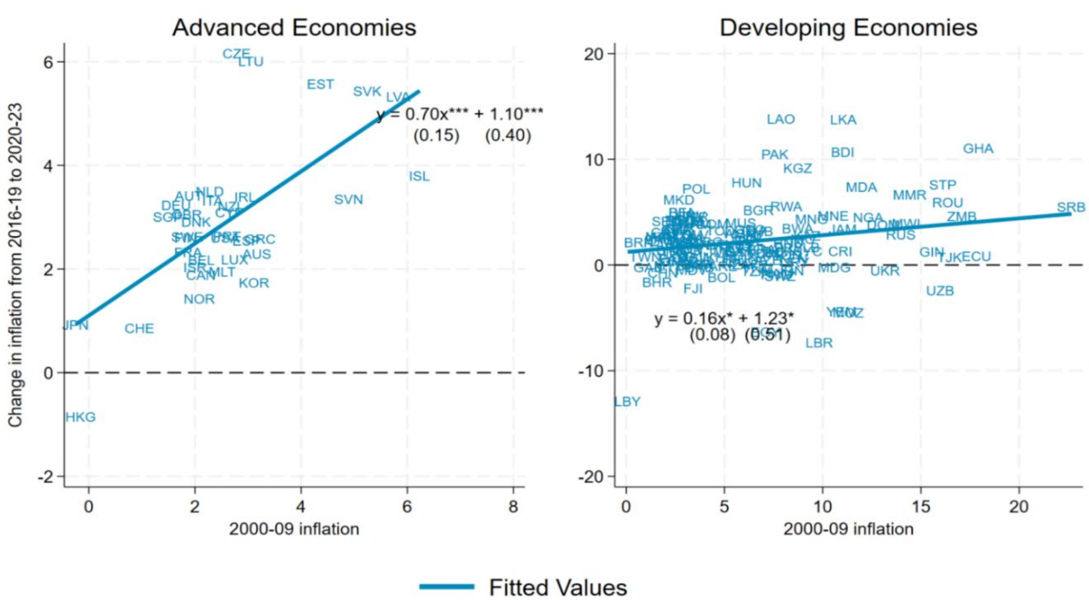
FIGURES AND TABLES

Figure 1. The correlation of COVID inflation with long past inflation



Note: *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, based on robust standard errors.
Source: Authors' calculations using data described in appendix B.

Figure 2. The effect of long past inflation on the COVID inflation surge



Note: *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively, based on robust standard errors.
Source: Authors' calculations using data described in appendix B.

Table 1. Cross-country regressions of COVID-era inflation

	CPI Inflation (20-23)			GDP Inflation (20-23)		
	All	**Advanced**	**Developing**	**All**	**Advanced**	**Developing**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Intercept	2.58***	1.06**	2.31***	2.36***	1.16***	2.12***
$(\boldsymbol{\alpha})$	(0.35)	(0.42)	(0.50)	(0.45)	(0.41)	(0.66)
INF(16-19)	0.40***	1.06**	0.40***	0.48***	0.84**	0.47***
$(\boldsymbol{\beta})$	(0.09)	(0.41)	(0.09)	(0.17)	(0.34)	(0.18)
INF(00-15)	0.47***	0.90***	0.49***	0.41***	0.72***	0.43***
$(\boldsymbol{\gamma})$	(0.10)	(0.28)	(0.11)	(0.11)	(0.26)	(0.12)
Output Gap (20-23)	0.53***	0.49**	0.48***	0.54***	-0.14	0.52***
$(\boldsymbol{\delta})$	(0.14)	(0.21)	(0.16)	(0.16)	(0.29)	(0.18)
No. Obs.	166	35	131	165	35	130
R^2	0.59	0.60	0.59	0.58	0.65	0.57

Note: The dependent variable is average inflation over the years 2020 through 2023. The independent variables are average inflation over the years 2016 through 2019, average inflation over the years 2000 through 2015, and the percent deviation of real PPP GDP per capita from a Hodrick-Prescott (HP) filtered trend. Outliers are excluded for INF(20-23)>25% or INF(00-19)>25%.
***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. Robust standard errors in parentheses.
Source: Authors' calculations using data described in appendix B.

Table 2: Adding inflation targets and central bank independence for COVID-era inflation

	All		Advanced		Developing	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Intercept	2.06***	0.36	8.48***	-0.01	1.18	-0.01
(α)	(0.71)	(1.14)	(1.59)	(0.72)	(1.12)	(1.74)
INF(16-19)	0.29*	0.39***	1.44***	1.37***	0.22	0.39***
(β)	(0.16)	(0.10)	(0.42)	(0.41)	(0.17)	(0.10)
INF(00-15)	0.37***	0.55***	0.92***	0.63**	0.38***	0.57***
(γ)	(0.11)	(0.13)	(0.20)	(0.24)	(0.12)	(0.14)
Output Gap (20-23)	0.58	0.51***	0.27**	0.38**	0.63	0.46**
(δ)	(0.35)	(0.18)	(0.13)	(0.16)	(0.57)	(0.22)
Inflation Target	0.53		-3.94***		0.78*	
(2022)	(0.37)		(0.84)		(0.40)	
Central Bank		2.85**		1.67*		3.00
Independence (20-23)		(1.39)		(0.86)		(2.23)
No. Obs.	93	136	31	33	62	103
R^2	0.60	0.62	0.71	0.67	0.57	0.61

Note: The dependent variable is average CPI inflation over the years 2020 through 2023. The independent variables are average CPI inflation over the years 2016 through 2019, average CPI inflation over the years 2000 through 2015, the percent deviation of real PPP GDP per capita from an HP filtered trend, inflation targets, and an index of central bank independence. Outliers are excluded for INF(20-23)>25% or INF(00-19)>25%.
***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. Robust standard errors in parentheses.
Source: Authors' calculations using data described in appendix B.

Table 3. Cross-country regressions of pre-COVID inflation

	CPI Inflation (16-19)			GDP Inflation (16-19)		
	All	**Advanced**	**Developing**	**All**	**Advanced**	**Developing**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Intercept	-0.19	0.37	-0.33	0.49	0.66**	0.45
$(\boldsymbol{\alpha})$	(0.40)	(0.23)	(0.50)	(0.37)	(0.28)	(0.54)
INF(12-15)	0.66***	0.48***	0.67***	0.27***	0.33**	0.27***
$(\boldsymbol{\beta})$	(0.12)	(0.07)	(0.12)	(0.08)	(0.14)	(0.08)
INF(96-11)	0.15	0.17***	0.15	0.38***	0.24***	0.39***
$(\boldsymbol{\gamma})$	(0.10)	(0.05)	(0.10)	(0.07)	(0.07)	(0.08)
Output Gap (16-19)	0.22	-0.09	0.25	-0.29**	-0.11	-0.29**
$(\boldsymbol{\delta})$	(0.28)	(0.14)	(0.30)	(0.12)	(0.18)	(0.14)
No. Obs.	161	35	126	162	34	128
R^2	0.55	0.46	0.51	0.61	0.45	0.58

Note: The dependent variable is average inflation over the years 2016 through 2019. The independent variables are average inflation over the years 2012 through 2015, average inflation over the years 1996 through 2011, and the percent deviation of real PPP GDP per capita from an HP filtered trend. Outliers are excluded for INF(16-19)>25% or INF(96-15)>25%.
***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. Robust standard errors in parentheses.
Source: Authors' calculations using data described in appendix B.

Table 4: Adding inflation targets and central bank independence for pre-COVID inflation

	All		Advanced		Developing	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-0.47	0.53	-0.04	0.43	-0.32	1.06
(α)	(0.53)	(1.10)	(1.59)	(0.40)	(0.76)	(1.67)
INF(12-15)	0.02	0.73***	0.53***	0.46***	-0.02	0.74***
(β)	(0.18)	(0.11)	(0.12)	(0.11)	(0.19)	(0.12)
INF(96-11)	0.07	0.06	0.14**	0.19***	0.08	0.06
(γ)	(0.05)	(0.07)	(0.06)	(0.06)	(0.05)	(0.07)
Output Gap (16-19)	-0.67**	0.14	-0.15	-0.13	-0.97**	0.15
(δ)	(0.27)	(0.34)	(0.16)	(0.15)	(0.41)	(0.37)
Inflation Target	1.06***		0.28		1.09***	
(2016)	(0.28)		(0.82)		(0.28)	
Central Bank		-0.70		-0.01		-1.77
Independence (2016-19)		(1.28)		(0.49)		(2.11)
No. Obs.	86	133	31	33	55	100
R^2	0.80	0.63	0.51	0.46	0.77	0.60

Note: The dependent variable is average CPI inflation over the years 2016 through 2019. The independent variables are average CPI inflation over the years 2012 through 2015, average CPI inflation over the years 1996 through 2011, the percent deviation of real PPP GDP per capita from an HP filtered trend, inflation targets, and an index of central bank independence. Outliers are excluded for INF(16-19)>25% or INF(96-15)>25%.

***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. Robust standard errors in parentheses.

Source: Authors' calculations using data described in appendix B.

Table 5: Adding survey measures of inflation expectations

	INF(2020-23)		INF(16-19)	
	(1)	**(2)**	**(3)**	**(4)**
Intercept	3.61***	3.19**	0.70***	0.49
(α)	(0.55)	(1.33)	(0.23)	(0.75)
INF (near lags)	0.35**	0.28	0.60***	0.56***
(β)	(0.14)	(0.30)	(0.08)	(0.18)
INF (long lags)	0.34**	0.30**	0.02	0.02
(γ)	(0.13)	(0.12)	(0.02)	(0.02)
Output Gap (contemporaneous)	0.87**	0.94*	-0.07	-0.10
(δ)	(0.38)	(0.47)	(0.18)	(0.16)
Far-Forward Survey (contemporaneous)		0.33		0.15
		(0.96)		(0.48)
No. Obs.	43	43	41	41
R^2	0.39	0.40	0.84	0.84

Note: The dependent variables are average CPI inflation over the years 2020 through 2023 (columns 1 and 2) and over 2016 through 2019 (columns 3 and 4). The independent variables are average CPI inflation over the years 2016 through 2019 (columns 1 and 2) and over 2012 through 2015 (columns 3 and 4); average CPI inflation over the years 2000 through 2015 (columns 1 and 2) and over 1996 through 2012 (columns 3 and 4); the percent deviation of real PPP GDP per capita from an HP filtered trend; and Consensus Forecasts average of professional forecasters' inflation projections for 6-10 years ahead. Outliers are excluded for INF(2023)>25% or INF(0019)>25% (columns 1 and 2) and for INF(16-19)>25% or INF(96-15)>25% (columns 3 and 4).
***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. Robust standard errors in parentheses.
Source: Authors' calculations using data described in appendix B.

Table 6: Cross-country regressions of COVID-era inflation expectations

	Far-Forward Survey (20-23)		**INF (20-23)**	
	(1)	**(2)**	**(3)**	**(4)**
Intercept	1.28***	0.32	3.98***	5.44***
$(\boldsymbol{\alpha})$	(0.12)	(0.33)	(0.60)	(1.61)
INF (16-19)	0.24***	0.11*	0.39***	0.60*
$(\boldsymbol{\beta})$	(0.07)	(0.06)	(0.13)	(0.32)
INF (00-15)	0.11**	0.05*	0.31**	0.39***
$(\boldsymbol{\gamma})$	(0.04)	(0.03)	(0.12)	(0.140
Output Gap (20-23)	-0.24*	-0.14*	1.00***	0.85*
$(\boldsymbol{\delta})$	(0.12)	(0.07)	(0.35)	(0.43)
Inflation Target (2022)		0.63***		-0.96
		(0.21)		(1.16)
No. Obs.	36	36	36	36
R^2	0.85	0.91	0.45	0.46

Note: The dependent variables are Consensus Forecasts professional forecasters' inflation projections for 6-10 years ahead, averaged over 2020 through 2023 (columns 1 and 2) and average CPI Inflation over 2020 through 2023 (columns 3 and 4). The independent variables are average CPI inflation over the years 2016 through 2019, average CPI inflation over the years 2000 through 2015, the percent deviation of real PPP GDP per capita from an HP filtered trend, and inflation targets. Outliers are excluded for INF(20-23)>25% or INF(00-19)>25%.
***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. Robust standard errors in parentheses.
Source: Authors' calculations using data described in appendix B.

Table 7. Cross-country regressions of COVID-era 10-year bond yields

	10-Year Bond Yields (20-23)			
	(1)	**(2)**	**(3)**	**(4)**
Intercept	-0.71*	-1.14*	-4.05***	-0.57
$(\boldsymbol{\alpha})$	(0.36)	(0.57)	(0.73)	(0.84)
INF (16-19)	0.88***	0.84***	0.19	1.60***
$(\boldsymbol{\beta})$	(0.11)	(0.11)	(0.16)	(0.43)
INF (00-15)	0.61***	0.54***	0.39***	0.30***
$(\boldsymbol{\gamma})$	(0.17)	(0.18)	(0.10)	(0.06)
Output Gap (20-23)	-0.62	-0.73*	-0.36	-0.49
$(\boldsymbol{\delta})$	(0.40)	(0.43)	(0.23)	(0.30)
INF (20-23)		0.14		
		(0.14)		
Inflation Target (2022)			2.33***	
			(0.48)	
Far-Forward Survey (20-23)				-0.37
				(0.77)
No. Obs.	53	53	47	38
R^2	0.78	0.79	0.92	0.79

Note: The dependent variable is the 10-year bond yield over the years 2020 through 2023. The independent variables are average CPI inflation over the years 2016 through 2019, average CPI inflation over the years 2000 through 2015, the percent deviation of real PPP GDP per capita from an HP filtered trend, average CPI inflation over the years 2020 through 2023, inflation targets, and Consensus Forecasts professional forecasters' inflation projections for 6-10 years ahead. Outliers are excluded for INF(20-23)>25% or INF(00-19)>25%.
***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. Robust standard errors in parentheses.
Source: Authors' calculations using data described in appendix B.

APPENDIX A: ADDITIONAL REGRESSIONS

Table A1. Auxiliary regressions, advanced economies

	Advanced Economies									
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Intercept	0.71**	20.28***	0.48	0.86**	-1.68	1.10**	1.17**	1.54***	1.63***	1.18***
	(0.27)	(7.05)	(0.46)	(0.40)	(1.13)	(0.45)	(0.43)	(0.41)	(0.51)	(0.33)
INF (16-19)	0.97**	1.11***	0.31	1.21***	0.93**	1.10**	1.09**	1.14***	1.35***	1.39***
	(0.36)	(0.38)	(0.28)	(0.39)	(0.40)	(0.46)	(0.40)	(0.38)	(0.36)	(0.41)
INF (00-15)	0.77***	0.75***	0.55	0.76***	1.10***	0.89***	0.88***	0.74***	0.55*	-0.11
	(0.24)	(0.21)	(0.36)	(0.23)	(0.27)	(0.29)	(0.27)	(0.24)	(0.29)	(0.40)
Output Gap (20-23)	0.50**	0.83***	0.26**	0.70***	0.72***	0.47**	0.43*	0.64**	0.90***	0.39**
	(0.18)	(0.25)	(0.13)	(0.22)	(0.25)	(0.23)	(0.22)	(0.24)	(0.32)	(0.16)
Headline minus Core Inflation	0.83***									
(20-23)	(0.20)									
Log of GDP PPP Per Capita, Constant		-1.71**								
Prices (20-23)		(0.63)								
Population Growth Rate			0.54*							
(20-23)			(0.28)							
Population Growth Rate				0.65***						
(20-23 minus 16-19)				(0.24)						
Share 65+					0.13**					
(20-23)					(0.05)					
Government Structural Balance/GDP						0.03				
(20-23)						(0.08)				
Government Structural Balance/GDP							0.06			
(20-23 minus 16-19)							(0.10)			
Current Account Balance/GDP								-0.07*		
(20-23)								(0.04)		
Current Account/GDP									-0.18**	
(20-23 minus 16-19)									(0.07)	
INF (00-15) X Central Bank										0.98**
Independence Index (20-23)										(0.38)
No. Obs.	35	35	35	35	35	35	35	35	35	33
R^2	0.70	0.67	0.71	0.68	0.65	0.60	0.60	0.64	0.67	0.69

Note: The dependent variable is average CPI inflation over the years 2020 through 2023. The independent variables are average CPI inflation over the years 2016 through 2019, average CPI inflation over the years 2000 through 2015, the percent deviation of real PPP GDP per capita from an HP filtered trend, and the list of auxiliary variables shown on the left. Outliers are excluded for INF(20-23)>25% or INF(00-19)>25%.
***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. Robust standard errors in parentheses.
Source: Authors' calculations using data described in appendix B.

Table A2. Auxiliary regressions, developing economies

	Developing Economies									
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Intercept	2.10***	5.35**	1.36*	2.07***	1.93***	3.50***	2.47**	2.34***	2.28***	2.14***
	(0.68)	(2.20)	(0.69)	(0.45)	(0.59)	(1.00)	(0.95)	(0.50)	(0.51)	(0.59)
INF (16-19)	0.57***	0.38***	0.10	0.50***	0.42***	0.52***	0.54***	0.40***	0.40***	0.38***
	(0.11)	(0.09)	(0.10)	(0.11)	(0.09)	(0.15)	(0.14)	(0.08)	(0.08)	(0.10)
INF (00-15)	0.24**	0.48***	0.36**	0.30***	0.47***	0.23*	0.25**	0.47***	0.50***	0.46
	(0.10)	(0.11)	(0.15)	(0.10)	(0.12)	(0.12)	(0.11)	(0.11)	(0.11)	(0.39)
Output Gap (20-23)	-0.02	0.45***	0.45	0.29	0.53***	0.36	0.31	0.58***	0.48***	0.53**
	(0.37)	(0.16)	(0.31)	(0.20)	(0.17)	(0.27)	(0.27)	(0.17)	(0.17)	(0.21)
Headline minus Core Inflation	0.91**									
(20-23)	(0.37)									
Log of GDP PPP Per Capita, Constant		-0.32								
Prices (20-23)		(0.23)								
Population Growth Rate			0.46***							
(20-23)			(0.16)							
Population Growth Rate				1.05***						
(20-23 minus 16-19)				(0.20)						
Share 65+					0.07					
(20-23)					(0.04)					
Government Structural Balance/GDP						0.11				
(20-23)						(0.19)				
Government Structural Balance/GDP							-0.22			
(20-23 minus 16-19)							(0.22)			
Current Account Balance/GDP								-0.06**		
(20-23)								(0.03)		
Current Account/GDP									-0.08*	
(20-23 minus 16-19)									(0.04)	
INF (00-15) X Central Bank										0.16
Independence Index (20-23)										(0.49)
No. Obs.	53	131	131	131	130	43	43	130	130	103
R^2	0.47	0.59	0.73	0.72	0.59	0.55	0.56	0.60	0.60	0.61

Note: The dependent variable is average CPI inflation over the years 2020 through 2023. The independent variables are average CPI inflation over the years 2016 through 2019, average CPI inflation over the years 2000 through 2015, the percent deviation of real PPP GDP per capita from an HP filtered trend, and the list of auxiliary variables shown on the left. Outliers are excluded for INF(20-23)>25% or INF(00-19)>25%.
***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. Robust standard errors in parentheses.
Source: Authors' calculations using data described in appendix B.

Table A3: Cross-country regressions of pre-COVID inflation expectations

	Far Forward Survey (16-19)		**INF (16-19)**	
	(1)	**(2)**	**(3)**	**(4)**
Intercept	1.49***	1.76***	0.89***	0.27
$(\boldsymbol{\alpha})$	(0.14)	(0.19)	(0.22)	(0.38)
INF (12-15)	0.26***	0.36***	0.61***	0.39***
$(\boldsymbol{\beta})$	(0.05)	(0.06)	(0.08)	(0.13)
INF (96-11)	0.02	0.02	0.01	0.01
$(\boldsymbol{\gamma})$	(0.01)	(0.01)	(0.02)	(0.02)
Output Gap (16-19)	0.19*	0.18**	-0.12	-0.09
$(\boldsymbol{\delta})$	(0.10)	(0.09)	(0.20)	(0.17)
Inflation Target (2016)		-0.18*		0.41*
		(0.10)		(0.23)
No. Obs.	36	36	36	36
R^2	0.85	0.87	0.86	0.88

Note: The dependent variables are Consensus Forecasts professional forecasters' inflation projections for 6-10 years ahead, averaged over 2016 through 2019 (columns 1 and 2) and average CPI inflation over 2016 through 2019 (columns 3 and 4). The independent variables are average CPI inflation over the years 2012 through 2015, average CPI inflation over the years 1996 through 2011, the percent deviation of real PPP GDP per capita from an HP filtered trend, and inflation targets. Outliers are excluded for INF(16-19)>25% or INF(96-15)>25%.
***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. Robust standard errors in parentheses.
Source: Authors' calculations using data described in appendix B.

Table A4: Cross-country regressions of pre-COVID 10-year bond yields

	10-Year Bond Yields (16-19)			
	(1)	**(2)**	**(3)**	**(4)**
Intercept	-0.42	-0.76**	-1.95***	-2.96***
$(\boldsymbol{\alpha})$	(0.38)	(0.32)	(0.43)	(0.92)
INF (12-15)	1.25***	0.88***	0.75***	0.26
$(\boldsymbol{\beta})$	(0.19)	(0.22)	(0.20)	(0.22)
INF (96-11)	0.09	0.11**	0.11**	0.05**
$(\boldsymbol{\gamma})$	(0.06)	(0.05)	(0.05)	(0.03)
Output Gap (16-19)	0.33	0.49*	0.55*	-0.23
$(\boldsymbol{\delta})$	(0.36)	(0.28)	(0.29)	(0.29)
INF (16-19)		0.45***		
		(0.15)		
Inflation Target (2016)			0.89***	
			(0.20)	
Far-Forward Survey (16-19)				2.16***
				(0.59)
No. Obs.	52	52	47	36
R^2	0.75	0.80	0.84	0.85

Note: The dependent variable is the 10-year bond yield over the years 2016 through 2019. The independent variables are average CPI inflation over the years 2012 through 2015, average CPI inflation over the years 1996 through 2011, the percent deviation of real PPP GDP per capita from an HP filtered trend, average CPI inflation over the years 2016 through 2019, inflation targets, and Consensus Forecasts professional forecasters' inflation projections for 6-10 years ahead. Outliers are excluded for INF(16-19)>25% or INF(96-15)>25%.
***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. Robust standard errors in parentheses.
Source: Authors' calculations using data described in appendix B.

APPENDIX B: DATA SOURCES

The primary source for data is the IMF's October 2024 *World Economic Outlook* (WEO) via https://www.imf.org/en/Publications/WEO. Data are at an annual frequency and cover 196 countries, including 38 advanced economies and 158 developing economies. However, regression samples are smaller than these totals owing to missing observations and excluded outliers. Data past 2023 are IMF projections. Data from the WEO include CPI inflation, GDP inflation, PPP real GDP per capita, population, general government structural balance, and the current account balance. The latter two variables are expressed in percent of GDP.

Output gaps are percent deviations of PPP real GDP per capita from a Hodrick-Prescott (HP) filtered trend, calculated separately for each country over the period 1981 to 2029. The HP parameter is 6.25, as recommended by Ravn and Uhlig (2002).

Core inflation data come from the World Bank, *A Global Database of Inflation*, available at https://www.worldbank.org/en/research/brief/inflation-database. Data for Italy were replaced with core inflation data from OECD *Main Economic Indicators*, accessed through FRED (https://fred.stlouisfed.org/series/CPGRLE01ITA659N), because the World Bank data for Italy were incorrect.

Central bank inflation targets come from CEIC, available at https://www.ceicdata.com/en.

The Central Bank Independence – Extended (CBIE) index, based on Romelli (2022, 2024), is available at https://cbidata.org/.

10-year government bond yields are from Macrobond.

Far-forward survey measures of inflation expectations are averages of professional forecasters' projections of inflation 6 to 10 years ahead from October issues of Consensus Forecasts, available at https://www.consensuseconomics.com/.

Population aged 65 and above as a percentage of total population come from the United Nations Population Division, *World Population Prospects*: *2024 Revision*, accessed through the World Bank, available at https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS.

The countries in both the COVID-era sample and the pre-COVID sample for CPI inflation are Albania, Algeria, Antigua and Barbuda, Armenia, Aruba, Australia[A], Austria[A], Azerbaijan, the Bahamas, Bahrain, Bangladesh, Barbados, Belgium[A], Belize, Benin, Bhutan, Bolivia, Botswana, Brazil, Brunei Darussalam, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Canada[A], Central African Republic, Chad, Chile, China, Colombia, Comoros, Republic of Congo, Costa Rica, Côte d'Ivoire, Croatia, Cyprus[A], Czech Republic[A], Denmark[A], Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Estonia[A], Eswatini, Fiji, Finland[A], France[A], Gabon, The Gambia, Germany[A], Ghana, Greece[A], Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Honduras, Hong Kong SAR[A], Hungary, Iceland[A], India, Indonesia, Ireland[A], Israel[A], Italy[A], Jamaica, Japan[A], Jordan, Kazakhstan, Kenya, Kiribati, Korea[A], Kyrgyz Republic, Lao P.D.R., Latvia[A], Lesotho, Libya, Lithuania[A], Luxembourg[A], Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta[A], Mauritania, Mauritius, Mexico, Micronesia, Moldova, Mongolia, Morocco, Mozambique, Namibia, Nepal, Netherlands[A], New Zealand[A], Nicaragua, Niger, Nigeria, Norway[A], Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, the Philippines, Poland, Portugal[A], Puerto Rico, Qatar, Romania, Russia, Rwanda, Samoa, São Tomé and Príncipe, Saudi Arabia, Senegal, Seychelles, Singapore[A], Slovak Republic[A], Slovenia[A], Solomon Islands, South Africa, Spain[A], Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Sweden[A], Switzerland[A], Taiwan, Tanzania, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Uganda, Ukraine, United Arab Emirates, United Kingdom[A], United States[A], Uruguay, Uzbekistan, Vanuatu, Vietnam, and Zambia.[15]

[15] Advanced economies have a superscript A.

Countries only in the COVID-era sample but not the pre-COVID sample are Bosnia and Herzegovina, Bulgaria, Georgia, Liberia, Montenegro, Myanmar, Serbia, Tajikistan, Turkmenistan, West Bank and Gaza, and Yemen.

Countries in the pre-COVID sample but not the COVID sample are Ethiopia, Eritrea, Haiti, Iran, Sierra Leone, and Suriname.