

Commentary: Inflation as a Fiscal Limit¹

It is a great pleasure to discuss this interesting, timely, and provocative paper by Bianchi and Melosi, which attempts to gauge how close we are to the inflationary limits to fiscal policy. It is a very good fit for the agenda of the symposium.

The paper builds on a tradition that posits that the primary causes for inflation are fiscal in nature. I will call this view “It’s Mostly Fiscal” (IMF, relation to the international financial institution with the same acronym entirely coincidental). Sargent and Wallace (1981) formulated this view in their celebrated “unpleasant monetarist arithmetic”; it was further elaborated and embedded in fully fledged DSGE models by Leeper (1991), Sims (1994), Woodford (1995); and Cochrane’s (2023) forthcoming book summarizes the literature. Francesco Bianchi and his co-authors have made several contributions that quantify the importance of fiscal policy in causing US inflation, using structural methods to estimate models of this sort (cf. Bianchi and Ilut 2017 and Bianchi and Melosi 2019).

A simple formulation of the IMF view is as follows. Money is merely one of many government liabilities. The price level is then not only the relative price of consumer goods to money but also the relative price of goods to the face value of *all* nominal government debt. The fiscal authority provides the ultimate backing of this debt. The fiscal, not only the monetary, authority decides how the long run consolidated government budget constraint is cleared, i.e. will debt be repaid through future surpluses or via inflationary finance. A good equilibrium is one where the monetary authority targets inflation and refuses to submit to pressures for inflationary finance; the fiscal authority begrudgingly raises revenues or cuts spending to finance its debt. But a bad equilibrium also exists where the fiscal authority devises no credible plan to repay the public debt and the budget constraint can only be cleared through inflation.

It is this bad equilibrium that Bianchi and Melosi see as the cause of the Great Inflation of the 70s. An important contribution of their paper is to quantify the relative importance of this fiscal channel relative to cost-push shocks such as the oil shocks of that decade. They argue that supply shocks caused only short-lived

¹ I thank Ricardo Reis, Ken Rogoff, and Silvana Tenreyro for comments on a draft of this discussion and Suryaansh Jain for outstanding research assistance.

inflationary surges and that persistent inflation as in the 70s is necessarily fiscal in nature. These conclusions are founded on a body of research by Bianchi and co-authors and consistent with a popular view that the inflationary 70s were caused by unfunded spending for the Vietnam war and the Great Society programs.

More speculatively, the authors posit that a substantial portion of the inflationary surge of 2021-2 was caused because the US Federal Government has lost its long-run credibility following the Covid-era spending programs, and the market is “pricing in” the possibility that Federal debt will be inflated away. I will challenge this conclusion shortly, but first I’ll outline two alternatives to the IMF view. These theories aren’t mutually exclusive and exist in tandem in most DSGE models, but their relative importance is still debated.

Alternative Views

I will outline two competing views of the drivers of inflation (Castillo Martinez and Reis, 2019 provide a useful overview). First is the monetary view, which I will call “It’s Mostly Money” (IMM). This view harks back at least to David Hume and is commonly associated with Milton Friedman. Under this theory, the price level is under the central bank’s control. In earlier formulations, inflation was always and everywhere a monetary phenomenon, fully determined by the supply of money. In modern theories, the central bank’s interest rate rule anchors inflation. Fiscal policy is merely a sideshow, which affects inflation if and only if the central bank finances fiscal excesses. This view puts the full responsibility for controlling inflation at central banks’ doorsteps.

Bianchi and Melosi have an interesting rejoinder to this view. They show that when public debt levels are elevated, the central bank may be unable to control inflation and may have no choice but to submit to the finance ministry’s fiscal excesses, regardless of central bank independence. Perversely, interest rate hikes may be *inflationary* when public debt is elevated. This is because interest rate hikes increase the cost of public debt service, leading to further borrowing, by the irresponsible Treasury, leading to yet higher inflation. Chris Sims (2016) previously made a similar observation in this forum, citing the case of Brazil in Loyo (2000), but Bianchi and Melosi flesh out the details more formally in this paper.

A second alternative hypothesis views inflation through the lens of the Phillips curve, which I will call “It’s Mostly Real” or IMR. In New Keynesian frameworks, the Phillips curve derives from an upward-sloping aggregate supply relation and inflation arises when demand expands or supply contracts. Monetary and fiscal policy affect inflation primarily by shifting aggregate demand. Expectations still matter and could lead to inflation, because the Phillips curve is forward looking, but this view attributes the recent inflationary surge to the global shock to oil prices, supply chain and labor market disruptions in the Covid 19 recovery, and possibly to excessively expansionary fiscal policy during the Covid pandemic.²

Is it Mostly Fiscal?

Bianchi and Melosi attribute a substantial share of the current inflationary surge to market expectations that fiscal policy has become unsustainable absent inflationary finance. Their analysis is competently executed, but I’d like to give some countervailing narratives.

Figure 1 shows estimated breakeven inflation rates at different horizons. This gives the bond market’s implied expectations of average annual inflation over horizons ranging from 2 to 20 years. Inflation is expected to revert remarkably quickly to below 3%. Of course, investors might be wrong, new crises may emerge, and Hilscher, Raviv, and Reis (2022) suggest that a careful evaluation of options data paints a slightly grimmer picture. (Gopinath 2022 showed similar evidence in her commentary.) But these caveats are neither here nor there when evaluating the IMF hypothesis. The bond market investors who are pricing these breakeven rates are precisely those whose elevated inflation expectations are causing the current inflationary surge according to the fiscal hypothesis. However, these very bondholders themselves are putting their money on very transient inflation, consistent with the cost-push IMR hypothesis.³

² Di Giovanni et al (2022) estimate that one half of EU inflation and one third of US inflation dynamics during the Covid era of Q4 2019 to Q4 2021 can be attributed to supply shocks mainly in the form of supply chain bottlenecks. This was *before* the massive shock of the war in Ukraine.

³ Lest one think that inflation expectations extracted from Treasury yields are distorted due to Federal Reserve asset purchases, Figure 1 also shows that the median responses in the survey of professional forecasters paint a similar picture.

International trends are also illuminating. Figure 2 presents inflation in the US, EU, the UK and Japan in the aftermath of the Covid pandemic. Inflation has followed remarkably similar patterns in Europe and the US but is yet to surpass 3% in Japan. The IMF hypothesis requires that expectations of fiscal policy have become unanchored in concert in all high-income countries, except for the one with the highest debt to GDP ratio by far, at 260%. Coincidentally, this is also a country with the one of the lowest tax intakes among high income countries at 31% of GDP (compare with 39% in Greece). I see no suggestion that the Japanese government has more serious plans to fund its debt with surpluses than its counterparts. I can think of reasons why the bond market may be more forgiving to the Japanese finance ministry than to others, but the IMR view provides a far more parsimonious explanation. Japan was affected far less by the Covid pandemic than other countries, with unemployment peaking at merely 3.2% and is therefore suffering less from some of the labor market constraints of the Covid-19 recovery; and Japanese firms have so far sheltered consumers from large energy price hikes.

Returning to the 1970s, Figure 3 (based on Ilzetzki, Reinhart, and Rogoff 2020a) shows inflation in the US and the median high-income country. The two overlap nearly perfectly. The great inflation was a global phenomenon. The Vietnam war and Johnson's Great Society programs can explain fiscal policy in one country alone. The fiscal view requires synchronized fiscal excesses in dozens of separate finance ministries. To paraphrase Tolstoy: each finance ministry was irresponsible in its own way. While this is possible, Occam's razor is kinder to the IMR and IMM hypotheses. On the real side, the oil price shocks were a global phenomenon, and on the monetary side, the end of Bretton Woods left countries around the globe scrambling to devise alternative monetary frameworks.⁴

Missing Demand in the Fiscal Theory

Why is the fiscal theory a ticking time bomb that (so far) refuses to detonate?

There are some lessons for fiscal theorists from 1970s monetarism. The velocity of

⁴ The discussion here focusses on high income countries. Unsustainable fiscal policies and the IMF view may have well played a role in the hyperinflationary experiences of low- and middle-income economies in that decade.

money was always the weakest link in the quantity theory of money. Econ undergraduates learn that $MV=PY$ but are quickly told to assume that velocity is constant. In other words, money supply would be a sufficient statistic for long run inflation *if* money demand were stable. But money demand turned out to be extremely volatile and unpredictable, making monetary rules based on the quantity of money difficult to implement.

Similarly, the fiscal hypothesis presumes that demand for public bonds is determined primarily by arbitrage conditions and expectations of intertemporal budget constraints. Figure 4 shows a familiar figure of a rising US debt to GDP ratio alongside declining nominal and real yields on (5-year) US Treasuries. A rising quantity of debt alongside declining yields suggests that demand shifts have been far more important than supply in pricing government debt. That medium-term German and Japanese bonds traded at negative nominal returns last decade also indicates that expected returns are only part of the reason sovereign bonds are held. The fiscal theory could benefit from attention to drivers of demand for safe assets.

The demand side of the equation presents different limits on fiscal policy, complementing the fiscal-monetary interactions discussed here. In Ilzetzki, Reinhart, and Rogoff (2019, 2020b, 2022), we discuss some of the factors leading to the US dollar's global dominance, with the commensurate global demand for dollar-denominated assets. We also warn that this demand risks outstripping US fiscal capacity to back these assets. Farhi and Maggiori (2018) evaluate the factors that could shift the global economy from its current equilibrium to a multipolar system of anchor currencies.⁵ The US Federal intertemporal budget constraint remains a factor to consider in this analysis, but global demand-side factors intervene as well. Bassetto and Cui (2018); Brunnermeier, Merkel and Sannikov (2022); and Jiang et al (2022) have made recent theoretical progress in considering convenience yields and liquidity consideration in the fiscal theory of the price level. These theories may explain why unfunded public debt has risen—and could continue to rise—for time to come.

⁵ Krishnamurthy, He, and Milbradt (2019); Jiang, Krishnamurthy and Lustig (2021); Krishnamurthy and Li (2022); and Mian, Straub and Sufi (2022) have made related contributions.

To be clear: I am concerned about the sustainability of US public debt in the long run. I am also not sanguine about current inflationary trends. However, I don't see the two concerns as having as intimate a link as do Bianchi and Melosi.

Conclusion

The paper is an important contribution to the debate on the limits on fiscal policy and the causes for the recent inflationary surge. Further empirical work and further consideration of international factors will help shed further light on this debate. Finally, I suspect that the developments of the upcoming year will make us all a little wiser at next year's symposium.

References

- Bassetto, Marco and Wei Cui (2018). "The Fiscal Theory of the Price Level in a World of Low Interest Rates," *Journal of Economic Dynamics and Control*, 89 pp. 5-22.
- Bianchi, Francesco and Cosmin Ilut (2017). "Monetary/Fiscal Policy Mix and Agent's Beliefs," *Review of Economic Dynamics*, vol. 26, pp. 113-139.
- Bianchi, Francesco and Leonardo Melosi (2019). "The dire effects of the lack of monetary and fiscal coordination," *Journal of Monetary Economics*, vol. 104(C), pages 1-22.
- Brunnermeier, Markus K., Sebastian Merkel, and Yuliy Sannikov. "The Fiscal Theory of the Price Level with a Bubble," unpublished manuscript, Princeton University.
- Castillo-Martinez, Laura, and Ricardo Reis (2019). "How do Central Banks Control Inflation? A Guide For the Perplexed," unpublished manuscript, London School of Economics.
- Cochrane, John H. (2023) *The Fiscal Theory of the Price Level*. Princeton, NJ: Princeton University Press. Forthcoming
- di Giovanni, Julian, Şebnem Kalemli-Ozcan, Alvaro Silva and Muhammed A. Yildirim (2022). "Global Supply Chain Pressures, International Trade, and Inflation," Paper prepared for the ECB Forum on Central Banking.
- Gopinath, Gita (2022). "Panel on An End to Pre-Pandemic Trends or Just a Temporary Interruption? How Will the Pandemic and War Shape Future Monetary Policy?" Proceedings of the Jackson Hole Economic Policy Symposium, Federal Reserve Board of Kansas City.
- Gürkaynak, Refet S., Brian Sack, and Jonathan H. Wright (2010). "The TIPS Yield Curve and Inflation Compensation," *American Economic Journal: Macroeconomics*, vol 2, pp70-92.
- Hilscher, Jens, Alon Raviv and Ricardo Reis, "How Likely is an Inflation Disaster?," mimeo, London School of Economics.
- Ilitzki, Ethan, Carmen M. Reinhart, and Kenneth S. Rogoff (2019). "Exchange Arrangements Entering the 21st Century: Which Anchor Will Hold?" *Quarterly Journal of Economics*, 134:2, 599-646.
- Ilitzki, Ethan, Carmen M. Reinhart, and Kenneth S. Rogoff (2020a). "Will the Secular Decline in Exchange Rate and Inflation Volatility Survive Covid-19?" *Brookings Papers on Economic Activity*, Fall 2020.
- Ilitzki, Ethan, Carmen M. Reinhart, and Kenneth S. Rogoff (2020b). "Why is the Euro Punching Below its Weight?," *Economic Policy*, 35(3), 2020.
- Ilitzki, Ethan, Carmen M. Reinhart, and Kenneth S. Rogoff (2022). "Rethinking Exchange Rate Regimes," in *Handbook of International Economics*, vol 5, Gita Gopinath, Elhanan Helpman and Kenneth Rogoff, eds.
- Jiang, Zhengyang, Arvind Krishnamurthy, and Hanno Lustig (2021). "Foreign Safe Asset Demand and the Dollar Exchange Rate." *Journal of Finance*.
- Jiang, Zhengyang, Hanno Lustig, Stijn Van Nieuwerburgh and Mindy Z. Xiaolan (2022). "The U.S. Public Debt Valuation Puzzle," unpublished manuscript.

Krishnamurthy, Arvind, Zhiguo He, and Konstantin Milbradt (2019). "A Model of Safe Asset Determination," *American Economic Review*, 109:4 pp 1230-1262.

Krishnamurthy, Arvind and Wenhao Li (2022). "The Demand for Money, Near-Money, and Treasury Bonds." *Review of Financial Studies*.

Leeper, Eric M. (1991). "Equilibria under 'Active' and 'Passive' Monetary and Fiscal Policies". *Journal of Monetary Economics*. 27 (1): 129-147.

Loyo, E. (2000). "Tight Money Paradox on the Loose: A Fiscalist Hyperinflation," discussion paper, John F. Kennedy School of Government.

Mian, Atif R., Ludwig Straub and Amir Sufi (2022). "A Goldilocks Theory of Fiscal Deficits." NBER Working Paper 29707.

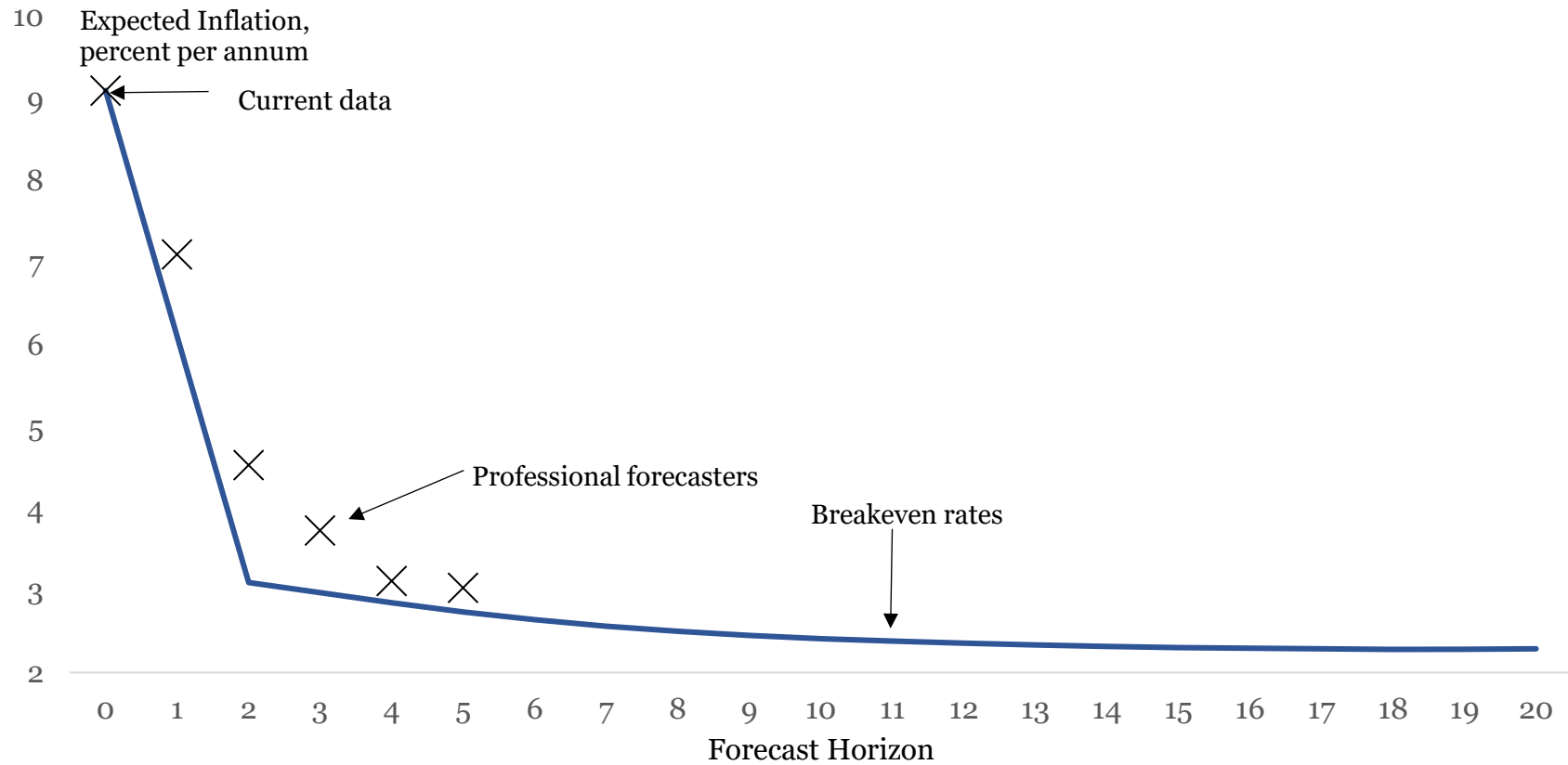
Ramey, Valerie A. (2022). "Panel on An End to Pre-Pandemic Trends or Just a Temporary Interruption?" Proceedings of the Jackson Hole Economic Policy Symposium, Federal Reserve Board of Kansas City.

Sims, C.A. (1994). "A simple model for study of the determination of the price level and the interaction of monetary and fiscal policy," *Econ Theory* 4, 381-399.

Sims, C.A. (2016). "Luncheon Address: Fiscal policy, monetary policy, and central bank independence," *Jackson Hole Economic Symposium Proceedings*, Federal Reserve Bank of Kansas City.

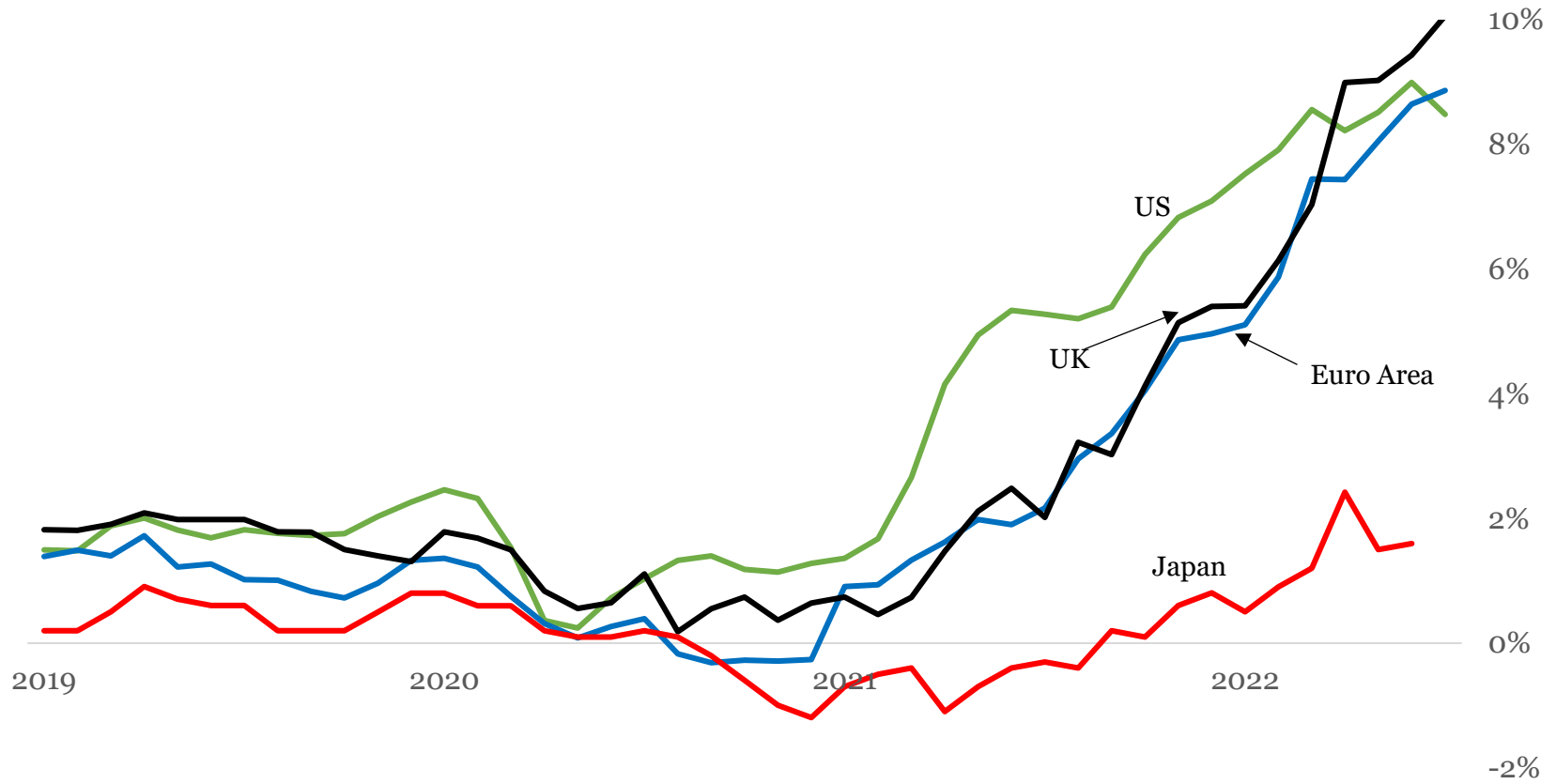
Woodford, Michael (1995). "Price Level Determinacy Without Control of a Monetary Aggregate" (PDF). *Carnegie-Rochester Conference Series on Public Policy*. 43: 1-46.

Figure 1: Inflation compensation in US Treasury Yields and Professional Forecasts



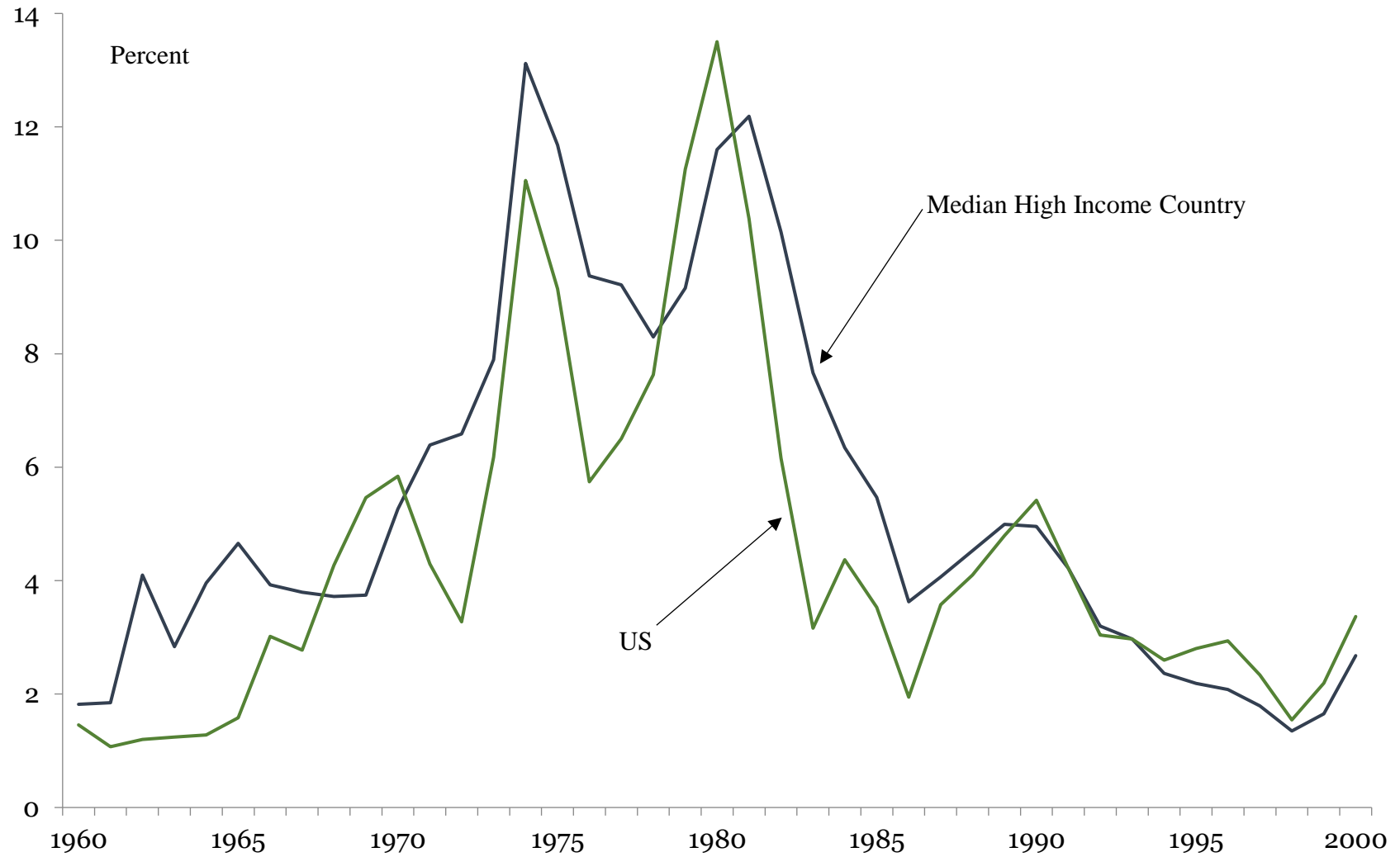
Note: Annualized inflation expectations at various forecast horizons implied by differences between Treasury and TIPS yields (on July 29, 2022). Value at forecast horizon zero gives the June 2022 year-on-year inflation rate. Values from forecast horizon 2 and above are smoothed inflation compensations at each horizon, calculated using the Gürkaynak, Sack, and Wright (2010) method. Breakeven rates may reflect a combination of liquidity differences and inflation expectations. The Xs represent the median of inflation expectations from the Survey of Professional Forecasters (Q2, 2022). Sources: Federal Reserve Board, Federal Reserve Bank of Philadelphia and the author.

Figure 2: Inflation in Four Economic Areas



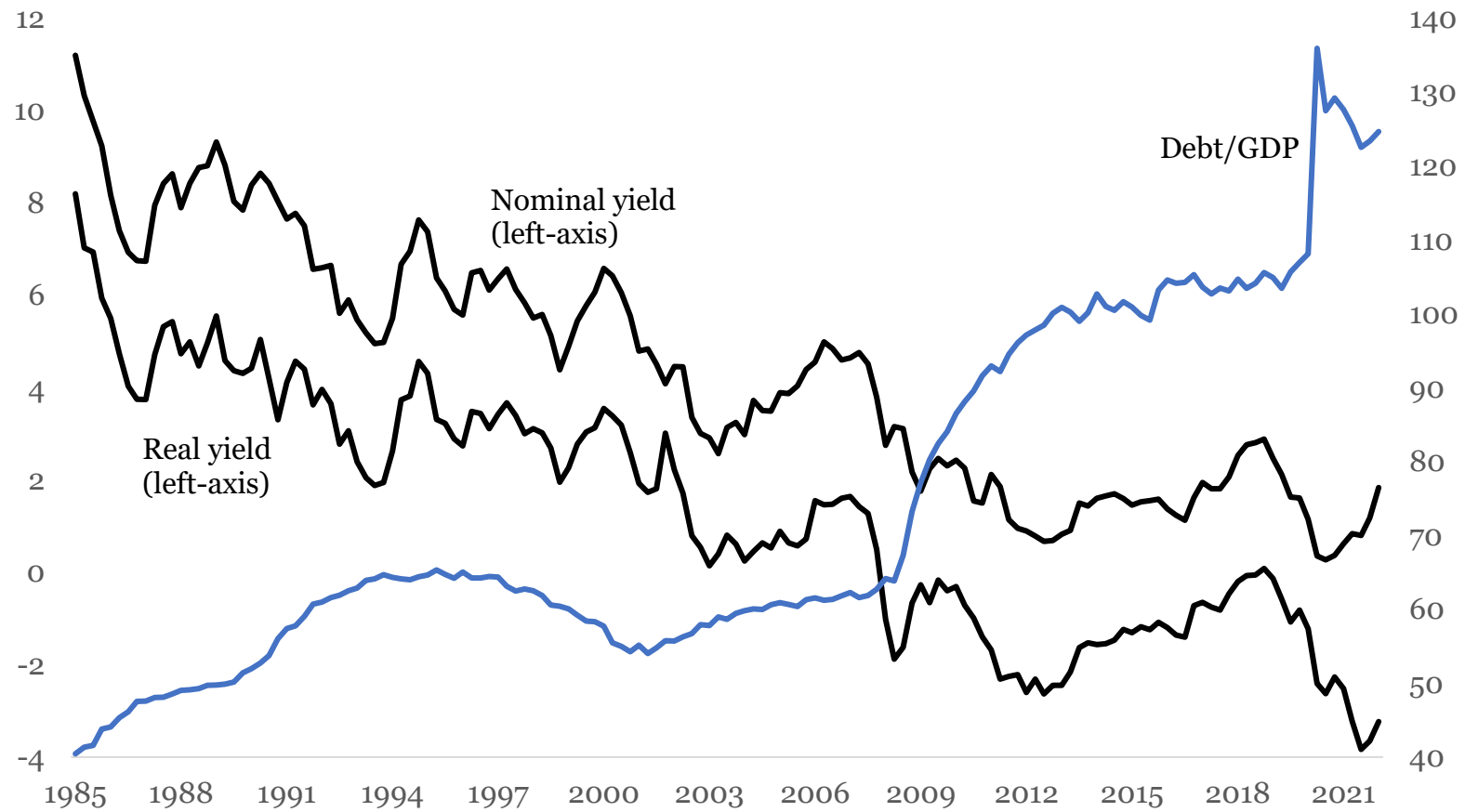
Note: Year-on-year inflation rates. Sources: U.S Bureau of Labor Statistics, Eurostat, Bank of Japan, UK Office of National Statistics.

Figure 3: 1970s Inflation in the US and the Median High-Income Country



Sources: Ilzetki, Reinhart and Rogoff (2020), IMF World Economic Outlook, and the author.

Figure 4: US Debt to GDP and Nominal and Real Yields on 5-Year Treasuries



Note: US Debt as a percent of GDP (right axis) and nominal and real yield on 5-year US Treasuries. Real yield is the ex-ante yield, with inflation expectations taken from the Michigan survey of consumers. Sources: Office of Management and Budget, Federal Reserve Board, Survey of Consumers: University of Michigan, St. Louis Fed, and the author.