Tempting FAIT: Flexible Average Inflation Targeting and the Post-COVID U.S. Inflation Surge*

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Abstract

In August 2020, the Federal Reserve replaced Flexible Inflation Targeting (FIT) with Flexible Average Inflation Targeting (FAIT), introducing make-up strategies that allow inflation to temporarily exceed the 2% target. Using a synthetic control approach, we estimate that FAIT raised CPI inflation by about 1 percentage point and core CPI inflation by 0.5 percentage points, suggesting a moderate impact net of food and energy and a largely temporary effect. Short- to medium-term inflation expectations increased by approximately 0.8 percentage points, while long-term expectations remained anchored. The effects of FAIT on economic activity were, if anything, minimal. Our results are robust across multiple specifications, including alternative price indices, synthetic control estimators, control groups, and adjustments for global supply chain pressures, economic activity, fiscal policy, commodity prices, interest rates, and monetary aggregates. The differing macroeconomic outcomes under FAIT versus a counterfactual FIT characterized by moderate inflationary effects, negligible real effects, and anchored long-term expectations, are consistent with the hypothesis of a steeper-than-expected post-pandemic Phillips curve in the New Keynesian model.

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1 Introduction

In August 2020, at the Jackson Hole Economic Symposium, Federal Reserve Chairman Jerome Powell announced a pivotal shift in the Federal Reserve's monetary policy framework: the adoption of Flexible Average Inflation Targeting (FAIT). This new approach addressed concerns over persistently below-target inflation and the risk of inflation expectations becoming anchored below the 2% target. Under FAIT, the Federal Reserve explicitly acknowledged that inflation could temporarily exceed the target to compensate for past undershooting (Board of Governors (2020)). While reinforcing the Fed's commitment to long-term inflation expectations anchoring, the framework signaled greater tolerance for short-term inflation overshoots and broadened the Fed's maximum employment objective, particularly to address employment shortfalls. This framework shift was reinforced by FOMC guidance in September and December 2020 on balance sheet normalization and policy rate liftoff, closely mirroring the December 2015 sequential approach following the prior zero-lower-bound episode (Waller (2022)).

This shift in monetary policy coincided with the most significant inflation surge in the U.S. since the Great Inflation (1965-1982). The causes of the post-pandemic inflation surge remain contested. Much of the literature attributes it to a mix of supply chain disruptions, shifts in spending from services to goods, commodity price shocks, and fiscal stimulus—reflecting demand and supply imbalances.[1] Others highlight deeper structural forces—such as labor and supply constraints with heterogeneous sectoral effects and possible nonlinearities or a steepening Phillips curve—as central to explaining inflation dynamics.[2] Meanwhile, as Waller (2022) notes, ongoing questions remain about whether FAIT—on its own or amid perceived fiscal dominance—played a role in the inflation surge.

Among the foundational contributions advocating for FAIT, Nessen and Vestin (2005) is credited with its early proposal as a monetary policy framework. Subsequent studies following the Federal Reserve's adoption include Duncan, Martínez-García, and Coulter (2022), Eggertsson and Kohn (2023), Honkapohja and McClung (2023), and Jia and Wu (2023). Of these, Duncan, Martínez-García, and Coulter (2022) provides the most closely related empirical analysis, though its emphasis remains on the theoretical transmission of monetary policy under FAIT.

We assess whether FAIT led to distinct outcomes for actual inflation, inflation expectations, and economic activity—and, if so, what these effects reveal about possibly concurrent structural shifts in monetary policy trade-offs. Our study remains agnostic as to whether FAIT constrained policy choices relative to Flexible Inflation Targeting (FIT) or merely reinforced stronger forward guidance (i.e., a "lower-for-longer" stance), especially as policy rates swiftly returned to the zero-lower-bound at the onset of the pandemic.

To evaluate this new regime, we compare U.S. outcomes under FAIT to a counterfactual scenario under FIT using synthetic control methods (SCMs). Our empirical strategy incorporates several key elements. First, we construct a donor pool from OECD countries that adopted FIT during our study period, beginning with the Federal Reserve's shift to FIT in January 2012. To ensure greater comparability, we further restrict the pool to countries that consistently maintained a 2% inflation target throughout, in line with the Federal Reserve's own objective.[3]

[1] See, e.g., Ball, Leigh, and P. Mishra (2022); Borio, Hofmann, and Zakrajsek (2023); Gagliardone and Gertler (2023); Bernanke and Blanchard (2023); Blanchard and Bernanke (2024). Shapiro (2024) attributes roughly half of U.S. headline inflation (August 2020–February 2022) to supply-side factors, one-quarter to demand, and the remainder to ambiguous influences.

[2] See, e.g., U.S. and concordant foreign evidence in Ari, Garcia-Macia, and S. Mishra (2023); Benigno and Eggertsson (2023); Benigno and Eggertsson (2024a); Benigno and Eggertsson (2024b); Florio, Siena, and Zago (2025).

[3] The countries in our donor pool also faced similar pandemic-related shocks and potential structural changes—such as a

Second, we focus our baseline analysis on the period from FAIT's adoption to the onset of Russia's invasion of Ukraine. This temporal restriction minimizes confounding effects from war-related commodity price shocks—such as those in oil, gas, and food—that could disproportionately affect inflation in several European economies within our donor pool. It also captures the window before U.S. and global monetary policy reversed course, shifting from accommodation to a tightening cycle, with forward guidance adopting a "higher-for-longer" stance. Nonetheless, we extend the analysis beyond this period as a robustness check and find qualitatively similar results.

Third, in addition to the canonical SCM (Abadie (2021)), we use the Augmented SCM (Ben-Michael, Feller, and Rothstein (2021)), which adjusts for potential bias from imperfect pre-intervention fit. Lastly, following Doudchenko and Imbens (2016), we residualize the outcome variables using covariates that reflect both global and domestic inflation drivers, including supply chain disruptions, global economic activity, commodity prices, government fiscal balances, and monetary aggregates, among others.

We find that FAIT significantly increased inflation relative to our estimated counterfactual, with causal effects on CPI inflation of about 1 percentage points, on average. Given a pre-FAIT average inflation rate of 1.58%, this represents a substantial rise. These results are statistically significant and robust across alternative model specifications, covariate sets, and synthetic control estimators.

For core CPI inflation, a common proxy for underlying inflation trends, we estimate effects around 0.5 percentage points, suggesting that FAIT's impact was moderate after excluding food and energy and largely perceived as transitory. Additionally, our analysis of professional forecasters' inflation expectations reveals a significant causal effect of approximately 0.8 percentage points for short-term expectations, while long-term expectations remained unchanged and well-anchored.

Finally, we examine FAIT's impact on economic activity using the unemployment rate and industrial production index and find little evidence of a causal effect. This might suggest that monetary policy accommodation had minimal influence on economic activity and operated under a relatively steep Phillips curve, where inflationary pressures affected inflation and short-term expectations more than real economic outcomes.

Our study contributes to three main strands of research. First, while most analyses of post-pandemic inflation emphasize the nature of the shocks—whether supply- or demand-driven—less attention has been paid to how monetary policy may have shifted under FAIT[4] or how structural changes, such as a steeper Phillips curve, may have altered monetary policy transmission. We contribute by empirically examining both FAIT's role in shaping inflation dynamics and the possibly concurrent structural shift in the Phillips curve affecting monetary policy trade-offs.

Second, while some studies find that FAIT's announcement had little effect on household inflation expectations (Coibion et al. (2023); Binder, Campbell, and Ryngaert (2024)), our analysis of professional forecasters uncovers statistically significant dynamic causal effects—broadly consistent with experimental evidence in Hoffmann et al. (2022).[5]

Third, we contribute to the literature on expectation anchoring. When long-term expectations are poorly

steeper Phillips curve—as discussed in Ari, Garcia-Macia, and S. Mishra (2023) and Florio, Siena, and Zago (2025) (Appendix A).

[4]See, e.g., Duncan, Martínez-García, and Coulter (2022); Borio, Hofmann, and Zakrajsek (2023); Gagliardone and Gertler (2023).

[5]Hoffmann et al. (2022) show that surveyed individuals significantly would revise their inflation expectations upward when presented with a hypothetical ECB adoption of FAIT.

anchored, temporary shocks can have lasting inflationary effects (Bems et al. (2021)), and central banks may face sharper trade-offs in stabilizing inflation, output, and employment (Bonomo et al. (2024)). Unlike prior regression-based tests that examine the relationship between short- and long-term expectations (Kumar et al. (2015)), we adopt a novel approach using SCMs to estimate the causal effects of FAIT on long-term inflation expectations—showing that they remained well-anchored throughout.

The remainder of the paper is structured as follows: Section 2 introduces the null hypotheses, describes the data, and outlines the SCMs employed. Section 3 presents the main findings and assesses their robustness. Section 4 provides concluding remarks, while the Appendix details the data sources. The Supplemental Appendix includes background details on FAIT, theoretical model insights and derivations, and supplementary tables and figures.

2 Theory, Data, and Methods

The Null Hypotheses. The Federal Reserve adopted FAIT in August 2020 to reinforce the anchoring of long-term inflation expectations. We hypothesize that FAIT preserved stability in long-term expectations during the pandemic-induced inflation surge, similar to what would have been expected under FIT. Thus, our null hypothesis asserts that FAIT neither constrained policymakers' responses to inflation nor altered the policy trajectory relative to FIT.

To explore this hypothesis, we rely on the canonical New Keynesian model. Since FAIT preserved the Federal Reserve's 2% inflation target, long-term expectations should remain anchored—absent credibility concerns or issues of non-uniqueness, which seem unlikely post-pandemic. As shown by Woodford (2008), inflation in equilibrium converges to a stochastic (Beveridge-Nelson) trend, $\pi_t^T \equiv \lim_{j \to +\infty} \mathbb{E}_t(\pi_{t+j})$, equal to the central bank's target. For tractability, we set the target to zero and log-linearize around a zero-inflation steady state, following Galí (2015).

This yields the standard IS and Phillips curve relationships:

$$\text{IS Curve: } x_t = \mathbb{E}_t(x_{t+1}) - \sigma^{-1}(i_t - \mathbb{E}_t(\pi_{t+1}) - r_t^n), \tag{1}$$

$$\text{Phillips Curve: } \pi_t = \beta \mathbb{E}_t(\pi_{t+1}) + \kappa x_t. \tag{2}$$

Key parameters include the discount factor $0 < \beta < 1$, intertemporal elasticity of substitution $\sigma^{-1} > 0$ corresponding to the IS curve slope, Frisch elasticity $\varphi^{-1} > 0$, intratemporal elasticity between differentiated goods $\epsilon > 0$, returns to scale parameter $0 \leq \alpha < 1$, and price stickiness $0 < \theta < 1$. These parameters determine the Phillips curve slope $\kappa \equiv \left(\frac{(1-\theta)(1-\beta\theta)}{\theta}\right)\left(\frac{1-\alpha}{1-\alpha+\alpha\epsilon}\right)\left(\sigma + \frac{\varphi+\alpha}{1+\alpha}\right)$.

Here, $x_t \equiv (y_t - y_t^n)$ is the output gap—reflecting the difference between real output y_t and its potential under flexible prices y_t^n—π_t is inflation, and i_t is the policy rate. Under flexible prices, the neutral nominal rate i_t^n equals the natural real rate r_t^n under the assumption of zero expected inflation, consistent with the central bank's target. The model also links the output gap $x_t = (1-\alpha)(n_t - n_t^n)$ to the employment gap $(n_t - n_t^n)$, with n_t being employment and n_t^n the maximum employment in the absence of nominal rigidities.

Assuming nominal rigidities diminish over time and long-term inflation expectations remain well-anchored, we solve the model defined by equations (1)–(2) forward using standard recursive substitution methods à la Blanchard-Kahn. This solution relates inflation and output (or employment) gaps to current and expected future monetary policy gaps, defined as deviations between the policy instrument i_t and the neutral rate i_t^n. Differences in macroeconomic outcomes under FAIT and FIT are denoted by superscripts, distinguishing their effects on inflation and economic activity. Since monetary policy frameworks do not alter the frictionless equilibrium given by y_t^n, n_t^n, and $i_t^n = r_t^n$, discrepancies in output and employment gaps reflect differences in actual output and employment, driven exclusively by differences in policy rate paths.

We express inflation and output (or employment) differentials between FAIT and FIT as:

$$\pi_t^{FAIT} - \pi_t^{FIT} = -\kappa\sigma^{-1}\sum_{j=0}^{+\infty}\psi_j \mathbb{E}_t\left(i_{t+j}^{FAIT} - i_{t+j}^{FIT}\right), \tag{3}$$

$$y_t^{FAIT} - y_t^{FIT} = -\sigma^{-1}\sum_{j=0}^{+\infty}\gamma_j \mathbb{E}_t\left(i_{t+j}^{FAIT} - i_{t+j}^{FIT}\right), \tag{4}$$

$$n_t^{FAIT} - n_t^{FIT} = \frac{1}{1-\alpha}(y_t^{FAIT} - y_t^{FIT}), \tag{5}$$

where ψ_j and γ_j are given by:

$$\psi_j = \left((1+\beta) + \kappa\sigma^{-1}\right)\psi_{j-1} - \beta\psi_{j-2}, \quad \forall j \geq 1, \tag{6}$$

$$\psi_0 = 1, \quad \psi_{-1} = 0,$$

$$\gamma_j = \psi_j - \beta\psi_{j-1}, \quad \forall j \geq 0, \tag{7}$$

define the policy transmission mechanism.[6]

If FAIT did not alter the policy path relative to FIT ($i_{t+j}^{FAIT} = i_{t+j}^{FIT}$ for all j), then inflation, expectations, and real activity should be identical across frameworks. Thus, this explains our null hypotheses of no effect. Conversely, if FAIT induced or contributed to a policy shift ($i_{t+j}^{FAIT} \neq i_{t+j}^{FIT}$ for some $j \geq 0$), its macroeconomic effects would also depend on the steepness of the Phillips curve.

Using standard pre-pandemic New Keynesian calibrations ($\sigma = 1$, $\beta = 0.99$, and κ between 0.026 and 0.204), we find that the sequences $-\kappa\sigma\psi_j$ and $-\sigma^{-1}\gamma_j$ for all $j \geq 0$ vary with κ, such that a steeper Phillips curve amplifies inflationary effects while dampening the real economic activity response. The sacrifice ratio, $\frac{y_t^{FAIT} - y_t^{FIT}}{\pi_t^{FAIT} - \pi_t^{FIT}} = \frac{\gamma_j}{\kappa\psi_j}$, drops sharply from 10.45 at $\kappa = 0.026$ to 1.92 at $\kappa = 0.204$ for an expected future policy rate differential arising four quarters ahead ($j = 3$). This underscores how the steepness of the Phillips curve can significantly reshape monetary policy transmission and trade-offs.

Moreover, the model highlights that forward guidance is an imperfect substitute for direct rate cuts, even at the zero-lower-bound. Although its effectiveness increases with the forecast horizon, it tends to exert stronger short-term effects on output than on inflation, which weaken at longer horizons. The model also underscores the asymmetry of forward guidance: "lower-for-longer" strategies—such as those introduced in 2020 under FAIT alongside balance sheet normalization guidelines (Waller (2022))—can stimulate economic activity at a greater inflationary cost than rate cuts, whereas "higher-for-longer" tightening, as implemented since March 2022, may curb inflation more effectively and at a lower cost to economic activity than rate hikes alone. This may help explain why inflation declined faster than expected with limited output loss since 2022, despite fewer rate increases.

[6] For additional background and a detailed derivation of the forward-looking solution, including also a discussion of counterfactual analysis and pass-through to inflation expectations, see the Supplementary Appendix.

Conversely, if the Phillips curve was steeper than assumed, policymakers may have over-accommodated in 2021—delivering more stimulus than warranted under a better real-time estimate of κ, or under a more restrained policy stance had policymakers adhered to the prior FIT regime—thus contributing to the inflation surge.[7]

While not designed as a formal test, our analysis provides evidence that can be interpreted as consistent with a post-pandemic steepening of the Phillips curve. In particular, strong responses of inflation and inflation expectations coupled with muted effects on real activity would support the view that the Phillips curve has become steeper than suggested by its conventional pre-pandemic calibrations.

Donor Pool and Outcome Variable. To estimate the counterfactual under FIT, we apply the SCM using a carefully selected donor pool. First, we restrict the pool to high-income OECD countries that had adopted explicit inflation targeting prior to our study period, ensuring comparability with the Federal Reserve's shift to FIT in January 2012. We prioritize economies that underwent similar pandemic-related shocks, as highlighted in Blanchard and Bernanke (2024), and potential structural shifts—such as a steepening of the Phillips curve—outlined in Ari, Garcia-Macia, and S. Mishra (2023). Second, we further limit the pool to countries that consistently maintained a 2% inflation target, in line with the Fed's objective. These conditions are verified using central bank documentation and Duncan, Martínez-García, and Toledo (2022). Our final donor pool consists of six economies: Canada, the Czech Republic, Israel, New Zealand, Sweden, and the U.K.

Our analysis covers the post-intervention period from the introduction of FAIT in August 2020 (2020:M8) to February 2022 (2022:M2), ending before monetary policy shifted toward tightening and forward guidance pivoted to a "higher-for-longer" strategy. This restriction also helps mitigate the confounding effects of Russia's invasion of Ukraine on February 24, 2022, which triggered sharp commodity price shocks with disproportionately larger impacts on some European economies in our donor pool.[8] The pre-intervention period spans from the adoption of FIT in January 2012 (2012:M1) to July 2020 (2020:M7).

The primary outcome variable (OV) is the year-over-year log change in seasonally adjusted headline CPI inflation: $\pi_t^{CPI} \equiv 100 \cdot (\ln(CPI_t) - \ln(CPI_{t-12}))$. We use headline CPI inflation to ensure consistency between the treated unit and the donor pool. Furthermore, we consider core CPI inflation (excluding food and energy), which, despite some critiques, is often used as a proxy for underlying inflation trends by removing highly volatile components.

Unlike donor pool countries, where central banks define their inflation targets in terms of CPI, the Federal Reserve shifted its target from CPI to PCE inflation in 2000.[9] However, CPI-PCE inflation differences have remained modest on average: headline CPI inflation exceeded headline PCE inflation by only 0.3 percentage points from January 2000 to February 2022 (Janson, Verbrugge, and Binder (2020)). During the pre-intervention period, average inflation rates were 1.58% for CPI and 1.40% for PCE, with an estimated difference of approximately 0.18 percentage points and a correlation of 0.993 (p-value = 0.00). To ensure robustness, we also estimate the model using PCE inflation as an alternative OV.[10]

[7]This echoes post-Global-Financial-Crisis lessons, where a flatter-than-expected Phillips curve suggested that more aggressive easing would have been appropriate had it been recognized in real-time (Caldara et al. (2021)).

[8]We relax this timing restriction in our robustness checks and obtain qualitatively similar results.

[9]As noted in Board of Governors (2000), the shift was motivated by the PCE deflator's superior ability to reflect changes in consumption patterns, its broader coverage, and its incorporation of more comprehensive data revisions beyond seasonal adjustments.

[10]In the Supplementary Appendix, Table S1 presents summary statistics for headline CPI, core CPI (excluding food and

Estimation Strategy. We employ SCM to construct a synthetic counterfactual for the U.S. inflation in the absence of FAIT, following Abadie, Diamond, and Hainmueller (2010) and Abadie, Diamond, and Hainmueller (2015).[11] SCM assigns weights to donor units to best replicate trends of the U.S. inflation rate—the OV—before FAIT's adoption. These weights are estimated by minimizing the quadratic differences between the treated unit (the OV) and the synthetic control (the counterfactual OV, constructed as a weighted average of control units) using pre-intervention data. The dynamic treatment effect (DTE) is computed as the difference between actual inflation (π_t) and the synthetic control (π_t^S): $DTE_t \equiv \pi_t - \pi_t^S$, for each post-intervention period ($T_0 \leq t \leq T$). This can be seen as the empirical counterparts of the left-hand side of equation (3). The average treatment on the treated (ATT) is then calculated as the mean of the DTEs over the post-intervention period:

$$ATT \equiv \frac{1}{T - T_0 + 1} \sum\nolimits_{t=T_0}^{T} DTE_t, \tag{8}$$

where T_0 and T denote the first and last post-intervention periods, respectively.

Our design incorporates several key features that enhance the reliability of the SCM: (A) a relatively long pre-intervention period (103 months), (B) a carefully selected donor pool of 6 control units with OVs closely matching the treated unit, and (C) a pre-intervention period characterized by relatively low variability in inflation shocks.[12] These conditions are favorable for SCM, as noted by Abadie (2021). Under assumptions closely aligned with (A)–(C), the SC estimator is unbiased when the data-generating process (DGP) follows a vector autoregressive model. If the DGP follows a linear factor model, the estimator's bias is also bounded and converges to zero—provided the pre-intervention fit is sufficiently good (Abadie (2021)).

That said, we also employ the Augmented SCM (ASCM) introduced by Ben-Michael, Feller, and Rothstein (2021), which improves the pre-intervention fit and corrects for (potential) bias using ridge regression and auxiliary predictors such as the government surplus as a share of GDP and percent changes in M3. Unlike the standard SCM, the ASCM permits negative weights, providing greater flexibility in capturing complex economic relationships between the treated unit and control units.[13]

Additionally, following Doudchenko and Imbens (2016), we residualize both pre- and post-intervention OVs against country effects and key global and domestic inflation drivers (e.g., Ball, Leigh, and P. Mishra (2022); Bernanke and Blanchard (2023); Borio, Hofmann, and Zakrajsek (2023); Gagliardone and Gertler (2023)). These include the Global Supply Chain Pressures Index, the Kilian Index (global economic activity), international energy price inflation, international food price inflation, government surplus as a share of GDP, changes in M3 money supply, industrial production growth, and the overnight interest rate. We then apply ASCM to the residualized OVs, following Ben-Michael, Feller, and Rothstein (2021), to control for external factors beyond FAIT that may have influenced inflation.[14]

energy), PCE inflation rates, and other indicators in the U.S. and the donor pool, while Figure S1 visualizes headline CPI inflation trends across these economies, and Figure S2 depicts the CPI-PCE inflation differential over time.

[11] For a comprehensive exposition, see Abadie (2021).

[12] See descriptive statistics in Table S1 and Figure S1 in the Supplementary Appendix.

[13] Following Bove, Elia, and Smith (2014), negative weights can be interpreted as isolating underlying global factors. For instance, if the treated unit is primarily influenced by factor A, while control units 1 and 2 are affected by both A and B and only B, respectively, the difference between control units 1 and 2 helps estimate the impact of factor A on the treated unit so a linear combination with a negative weight arises naturally in this context.

[14] We distinguish between SCM predictors, used in the matching process for SCM estimation, and covariates for residualization, which help remove their potential effects from the outcome, though some overlap exists.

Finally, we assess statistical significance using p-values and confidence intervals, following Chernozhukov, Wuthrich, and Zhu (2021).

3 Empirical Results

3.1 Main Findings

Table 1 and Figure 1 present our main results using headline CPI inflation and Core CPI inflation as the OVs. The first two rows in Table 1 report ATT estimates and corresponding p-values for various specifications and estimators included for sensitivity analysis. Bias-corrected estimates from ASCM appear in columns [2]-[4] and [6]-[8], while residualized inflation rates are analyzed over the full period using the set of covariates abovementioned (columns [3]-[4] and [7]-[8]).[15] To further evaluate robustness, we assess the impact of excluding Canada from the donor pool, given its high economic integration with the U.S. (columns [4] and [8]).

Table 1 also provides synthetic weights, pre-intervention root mean squared prediction error (RMSPE) and mean absolute prediction error (MAPE), and details on diagnostic and robustness tests (elaborated below). The low RMSPE values indicate an excellent pre-intervention fit, aligning with the observed U.S. inflation trajectory and similar inflation dynamics among control units from 2012:M1 to 2020:M7.[16] The estimated weights show notable sparsity, with some control units contributing minimally to the synthetic control. No single unit dominates, but the largest contributors are core Anglosphere economies, primarily Canada and the U.K., and occasionally New Zealand. Some negative weights appear but remain relatively small.

Our results largely exhibit the expected sign and statistically significant effects. Under our preferred specification, the ATT estimate for headline CPI inflation is slightly over 1 percentage point (column [3]). Given the pre-FAIT average inflation rate of 1.58%, this represents a relatively large intervention effect.

We also assess FAIT's impact on Core CPI inflation, often considered a proxy for underlying inflation trends. As shown in Table 1, residualized specifications (columns [7]-[8]) yield ATT estimates between 0.3 and 0.5 percentage points, notably lower than those for headline CPI inflation. This suggests that FAIT's impact on inflation, net of food and energy, may have been moderate and largely perceived as transitory.

Excluding Canada from the donor pool—typically the largest weight in the synthetic control estimator—does not significantly affect the results for headline CPI inflation (Table 1, column [4]). However, for core CPI inflation, removing Canada slightly lowers the ATT estimate to 0.3 percentage points (column [8]) and leads to reduced precision and a weaker pre-intervention fit.

[15]The findings remain consistent, even when restricting to the main set of covariates or residualizing only over the pre-pandemic period (available upon request).

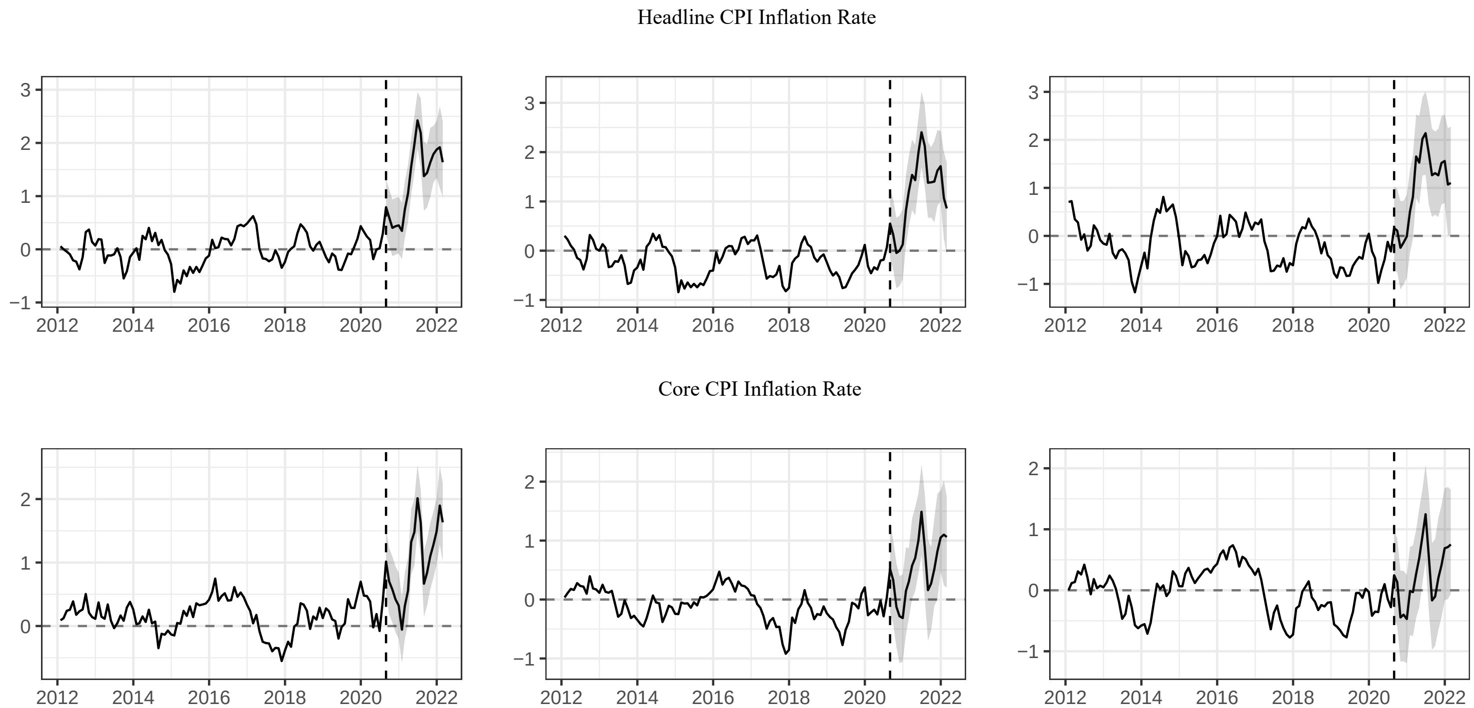
[16]See details in Table S1 and Figure S1 in the Supplementary Appendix.

Table 1. The Effect of Adopting FAIT on the CPI Inflation Rate

	Headline CPI Inflation				Core CPI Inflation			
	[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**	**[8]**
ATT	1.257	1.296	1.153	1.018	1.094	1.010	0.537	0.263
p-value	0.000	0.000	0.000	0.000	0.010	0.052	0.000	0.197
Bias correction	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Residualization	*No*	*No*	*Yes*	*Yes*	*No*	*No*	*Yes*	*Yes*
Dropping Canada	*No*	*No*	*No*	*Yes*	*No*	*No*	*No*	*Yes*
Weights								
Canada	0.438	0.438	0.414	...	0.541	0.575	0.404	...
Czech Republic	0.061	0.047	0.168	0.078	0.000	−0.016	−0.038	−0.010
Israel	0.000	−0.006	0.002	0.167	0.000	−0.040	0.141	0.295
New Zealand	0.080	0.065	0.117	0.416	0.000	0.026	0.211	0.379
Sweden	0.039	0.041	−0.055	0.017	0.000	−0.056	−0.022	0.018
United Kingdom	0.381	0.414	0.354	0.321	0.459	0.511	0.304	0.317
Diagnostics & Robustness								
RMSPE	0.282	0.283	0.386	0.482	0.360	0.302	0.295	0.381
MAPE	0.226	0.226	0.314	0.408	0.313	0.253	0.236	0.313
Estimated bias	...	−0.009	0.018	−0.022	...	0.069	−0.069	−0.035
Improv. vs. unif. weights	40.89	40.78	18.71	7.95	55.44	62.62	36.91	26.54
No anticipation (p-val)	0.320	0.302	0.912	0.609	0.287	0.181	0.971	0.520
In-time placebo (p-val)	0.982	0.979	0.290	0.034	0.824	0.571	0.198	0.534

Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations. Note: The p-value for the average treatment on the treated (ATT) corresponds to the joint null hypothesis that all post-intervention effects are zero. RMSPE and MAPE denote the pre-intervention root mean squared prediction error and mean absolute prediction error, respectively. When the Augmented SCM is used, the estimated bias from a potentially weak pre-intervention fit is reported. The auxiliary predictors used are the government surplus as a share of GDP and percent changes in M3. The row labeled 'Improv. vs. unif. weights' shows the percentage improvement relative to using uniform weights instead of Synthetic Control weights. The no-anticipation test (p-val) provides the p-value for the null hypothesis that the outcome gap was zero one month before FAIT adoption, while the in-time placebo test (p-val) tests whether the ATT was zero during the 24-month period between the placebo treatment date (2018:M8) and the actual treatment date (2020:M8). Residualization of outcome variables is conducted using country effects and key inflation drivers, including the Global Supply Chain Pressures Index (GSCPI), the Kilian Index, global energy price inflation (ENERGY), international food price inflation (FOOD), government surplus as a share of GDP (GSGDP), M3 growth (M3P), industrial production growth (IPP), and the overnight rate (ONR). Specifications [4] and [8] exclude Canada from the donor pool as part of a sensitivity analysis.

Figure 1. Outcome Gap: Headline and Core CPI Inflation Rates



Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations.
Note: The figures display the gap between actual values and synthetic estimates of the outcome variable, with 95% confidence intervals. The intervention date (August 2020) is marked by a dashed vertical line in each plot. The left panels show augmented synthetic control estimates (columns [2] and [6] in Table 1), while the center panels present augmented synthetic control with residualization (columns [3] and [7] in Table 1). The right panels illustrate augmented synthetic control with residualization, excluding Canada from the donor pool (columns [4] and [8] in Table 1). Residualization of inflation rates is conducted using country effects and key inflation drivers, including the Global Supply Chain Pressures Index (GSCPI), the Kilian Index, global energy price inflation (ENERGY), international food price inflation (FOOD), government surplus as a share of GDP (GSGDP), M3 growth (M3P), industrial production growth (IPP), and the overnight rate (ONR).

Since the Federal Reserve targets PCE inflation rather than CPI inflation, we test robustness by replacing U.S. CPI inflation with PCE inflation as the OV while retaining CPI inflation for donor pool countries (as no equivalent PCE inflation target exists for them). ATT estimates comparable to columns [2] and [3] in Table 1 remain close to 1 percentage point, suggesting that our findings are unlikely driven by differences in target inflation measures between the U.S. and donor pool countries.[17]

3.2 Exploring the Transmission Mechanism

To examine potential transmission mechanisms, we conduct parallel estimations using expected inflation measures from professional forecasters, including sophisticated forecasters in business and financial markets (polled by Consensus Forecast^{TM}), from short-term (one-quarter ahead) to long-term (6–10-years ahead) horizons. Table 2 and Figure 2 present the results. Our estimated ATTs range between 0.8 and 1 percentage points for short-term expectations (columns [1]–[4]), while for long-term expectations, effects are smaller, between 0 and 0.1 percentage points, and often statistically insignificant (columns [5]–[8]).[18]

This exercise is similar to a shock-anchoring test, which assesses whether short-term expectations adjust to an aggregate shock while long-term expectations remain stable around the target (see, e.g., Apokoritis, Galati, and Moesnner (2025)). Rather than relying on regression-based tests that examine the predictive relationship between short- and long-term expectations (Kumar et al. (2015)), we propose an approach that estimates causal effects using both expectations indicators and synthetic control estimators. Consistent with this, our results suggest that long-run expectations remained well-anchored following FAIT's adoption.

Compared to recent studies based on daily household surveys—such as Coibion et al. (2023) and Binder, Campbell, and Ryngaert (2024)—which find no effect of FAIT's announcement on household inflation expectations, our analysis using professional forecasters' surveys reveals statistically significant effects, though limited to short-term horizons. This finding aligns with experimental results from Hoffmann et al. (2022), where individuals revised their expectations upward when presented with a hypothetical ECB adoption of FAIT. The divergence is unsurprising, as professional forecasters and financial market participants tend to have more anchored expectations, greater attentiveness to inflation trends, and lower forecast errors (D'Acunto et al. (2024)). Central banks also prioritize these expectations, as they influence business decisions and, by extension, play a central role in shaping pricing behavior—the Phillips curve—and the broader transmission and trade-offs of monetary policy (Apokoritis, Galati, and Moesnner (2025)).

While short-term expectations appear highly sensitive, our findings for long-term expectations align with the baseline assumptions of the New Keynesian model underlying our null and alternative hypotheses. Building on this, we examine FAIT's impact on economic activity, a crucial factor in assessing the Phillips curve's slope and broader monetary policy trade-offs. Using the unemployment rate and industrial production as outcome variables, we find little statistically significant and robust evidence of a compelling causal link, even when considering alternative specifications. The results are presented in Table 3.

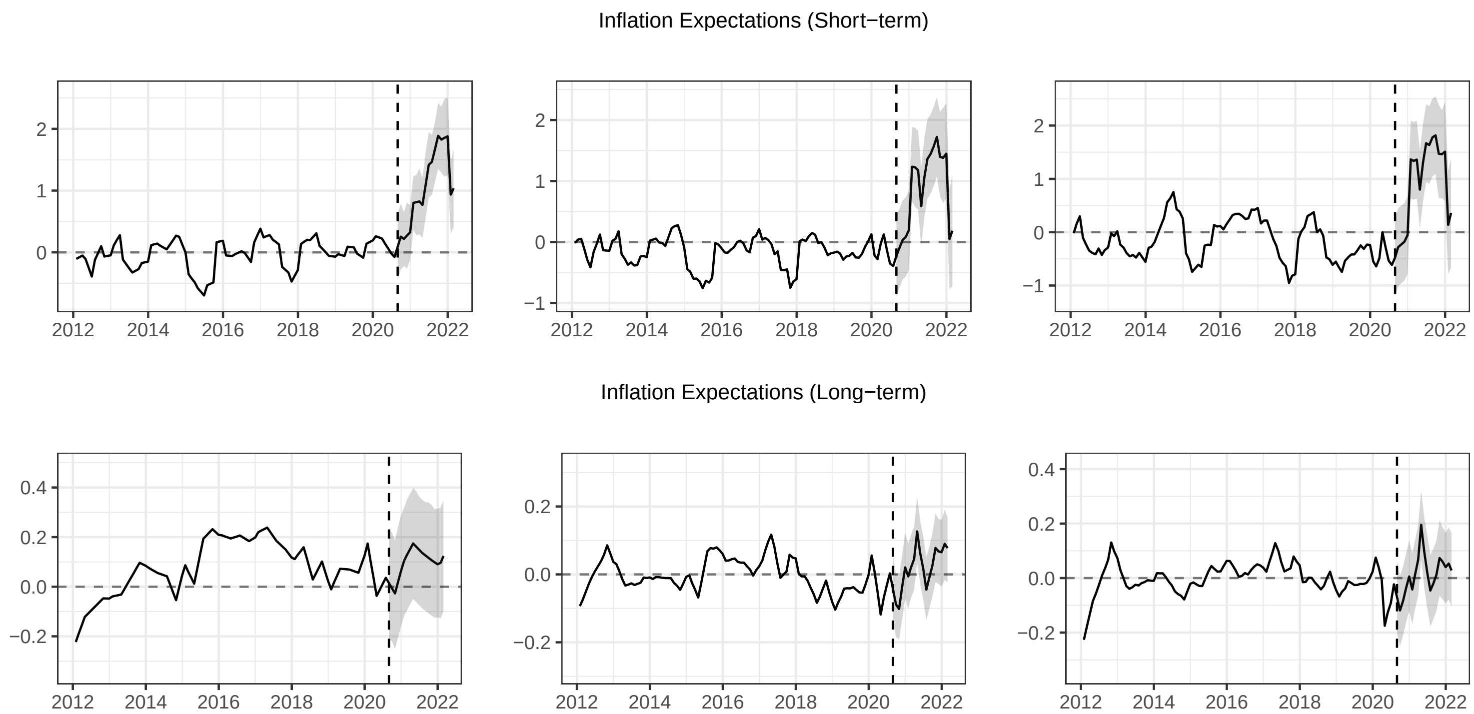
[17] See details in columns [1]-[2] of Table S2 in the Supplementary Appendix.

[18] Additional results at medium-term horizons, which further complement this evidence, can be found in columns [3]-[6] of Table S2 in the Supplementary Appendix. These findings indicate that much of the impact on inflation under FAIT was perceived as short-lived, largely dissipating within a year.

Table 2. The Effect of Adopting FAIT on Inflation Expectations								
	Short-term Expected Inflation				**Long-term Expected Inflation**			
	[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**	**[8]**
ATT	1.031	1.023	0.834	0.884	0.103	0.096	0.019	0.013
p-value	0.000	0.000	0.000	0.000	0.606	0.727	0.056	0.161
Bias correction	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Residualization	*No*	*No*	*Yes*	*Yes*	*No*	*No*	*Yes*	*Yes*
Dropping Canada	*No*	*No*	*No*	*Yes*	*No*	*No*	*No*	*Yes*
Weights								
Canada	0.585	0.586	0.575	...	0.000	−0.034	0.743	...
Czech Republic	0.000	−0.004	0.146	0.174	0.042	0.070	0.090	0.632
Israel	0.000	−0.017	−0.008	0.151	...	...	...	...
New Zealand	0.073	0.050	0.134	0.411	0.000	−0.031	0.080	0.273
Sweden	0.061	0.070	−0.126	−0.016	0.311	0.330	−0.005	0.096
United Kingdom	0.282	0.315	0.278	0.280	0.647	0.665	0.092	−0.001
Diagnostics & Robustness								
RMSPE	0.237	0.235	0.281	0.408	0.129	0.128	0.048	0.058
MAPE	0.184	0.184	0.208	0.350	0.107	0.106	0.039	0.042
Estimated bias	...	−0.005	0.074	−0.010	...	0.008	0.000	0.001
Improv. vs. unif. weights	36.98	37.34	31.38	9.716	26.24	27.01	22.10	20.29
No anticipation (p-val)	0.726	0.744	0.164	0.139	0.770	0.901	0.970	0.679
In-time placebo (p-val)	1.000	1.000	0.771	0.046	1.000	1.000	0.016	0.561

Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations. Note: Short-term expected inflation refers to the projected four-quarter change, one quarter ahead, while long-term expected inflation corresponds to the expected rate 6-10 years into the future. The p-value for the average treatment on the treated (ATT) tests the joint null hypothesis that all post-intervention effects are zero. RMSPE and MAPE denote the pre-intervention root mean squared prediction error and mean absolute prediction error, respectively. When the Augmented SCM is used, the estimated bias from a potentially weak pre-intervention fit is reported. The auxiliary predictors used are the government surplus as a share of GDP and percent changes in M3. The row labeled 'Improv. vs. unif. weights' shows the percentage improvement relative to using uniform weights instead of Synthetic Control weights. The no-anticipation test (p-val) assesses the null hypothesis that the outcome gap was zero one month before FAIT adoption, while the in-time placebo test (p-val) tests whether the ATT was zero during the 24-month period between the placebo treatment date (2018:M8) and the actual treatment date (2020:M8). Residualization of outcome variables is conducted using country effects and key inflation drivers, including the Global Supply Chain Pressures Index (GSCPI), the Kilian Index, global energy price inflation (ENERGY), international food price inflation (FOOD), government surplus as a share of GDP (GSGDP), M3 growth (M3P), industrial production growth (IPP), and the overnight rate (ONR). Specifications [4] and [8] exclude Canada from the donor pool as part of a sensitivity analysis. Israel is excluded from specifications [5]–[8] due to the unavailability of long-term expected inflation data.

Figure 2. Outcome Gap: Expected Inflation Rates



Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations.
Note: The figures illustrate the gap between actual values and synthetic estimates of the outcome variable, along with the 95% confidence intervals. The intervention date (August 2020) is marked by a dashed vertical line in each plot. The left panels display augmented synthetic control estimates (columns [2] and [6] in Table 1), the center panels show augmented synthetic control with residualization (columns [3] and [7] in Table 1), and the right panels present augmented synthetic control with residualization, excluding Canada from the donor pool (columns [4] and [8] in Table 1). Residualization of inflation rates is conducted using country effects and key inflation drivers, including the Global Supply Chain Pressures Index (GSCPI), the Kilian Index, global energy price inflation (ENERGY), international food price inflation (FOOD), government surplus as a share of GDP (GSGDP), M3 growth (M3P), industrial production growth (IPP), and the overnight rate (ONR).

To assess the inflation-unemployment trade-off, we analyze the unemployment rate through the lens of the New Keynesian model. We control for energy prices to isolate potential effects from an energy shock-induced wage-price spiral and focus on the inflationary period before the Ukraine war (February 24, 2022), which triggered a significant energy shock. Furthermore, given the central role of forward guidance in the forward-looking solution of the model—whether through FAIT's make-up strategies (since August 2020) or the FOMC's late-2020 announcements on balance sheet normalization and rate liftoff (Waller (2022))—we include the overnight rate and M3 growth as covariates to control for contemporaneous changes at the short end of the yield curve and balance sheet policy effects on the money supply. This allows us to isolate the impact of "low for longer" forward guidance. Still, our preferred specification using residualization with all donor pool countries shows that the expected negative effects on unemployment, estimated at approximately -0.46, are statistically insignificant (Table 3, column [3]).

FAIT's effects, concentrated primarily on inflation and short-term inflation expectations, while showing muted and largely insignificant effects on unemployment, are consistent with the hypothesis that the Phillips curve may have steepened post-pandemic. However, this does not imply that FAIT caused the steepening, only that monetary policy likely operated in a steeper-than-anticipated environment. Given pre-intervention fit metrics (RMSPE, MAPE) and other robustness checks, caution is warranted in interpreting the estimated effects on unemployment (or industrial production as an output proxy) as conclusive evidence of a steeper Phillips curve or a causal effect from the implementation of FAIT.

Several factors complicate inferences on FAIT's impact on economic activity. Differences in labor market rigidity and policy responses across donor pool countries—particularly in Europe, where employment retention policies dominated, in contrast to the U.S.'s income support approach—likely influenced labor reallocation and adjustment dynamics. This divergence, coupled with variations in energy dependence and costs, may contribute to differences in counterfactual economic activity responses, despite our attempts to control for these factors through residualization using commodity prices and global supply chain disruption indicators, among others.

3.3 Additional Diagnostics and Robustness Checks

For a causal interpretation of these findings, a credible synthetic control counterfactual must be established. Therefore, conducting diagnostic tests and robustness exercises is essential to assess the sensitivity of the results to variations in the study's design. The lower panels of Table 1 through Table 3 jointly with the Supplementary Appendix provide this information.

3.3.1 Absence of Anticipation Effects and Time Placebos

We test for the absence of anticipation effects by estimating the synthetic control while backdating the intervention period to one month before FAIT's adoption. We report the p-value for the null hypothesis that the treatment effect—the difference between the actual OV and its synthetic counterpart—is zero in 2020:M7. Our results indicate no evidence of anticipation effects on actual or expected inflation rates (see, e.g., Table 1–Table 2).

Similarly, we conduct an in-time placebo test by backdating the intervention period 24 months before FAIT's adoption. The row labeled "In-time placebo (p-val)" reports the p-value for the null hypothesis that the ATT is zero during this adjusted period. Ideally, a high p-value, preferably above 0.1, would increase

Table 3. The Effect of Adopting FAIT on Economic Activity								
	Unemployment Rate				**Industrial Production**			
	[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**	**[8]**
ATT	−0.114	0.237	−0.463	−1.024	−0.052	0.327	−0.348	−1.426
p-value	1.000	0.766	0.160	0.151	0.483	0.417	0.418	0.000
Bias correction	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Residualization	*No*	*No*	*Yes*	*Yes*	*No*	*No*	*Yes*	*Yes*
Dropping Canada	*No*	*No*	*No*	*Yes*	*No*	*No*	*No*	*Yes*
Weights								
Canada	0.604	1.176	0.665	...	0.668	0.698	0.734	...
Czech Republic	0.396	0.306	0.425	0.455	0.000	−0.041	−0.028	0.245
Israel	0.000	0.131	−0.010	0.002	0.032	0.039	0.122	0.226
New Zealand	0.000	−0.512	−0.060	0.004	0.191	0.163	0.093	0.441
Sweden	0.000	−0.630	0.013	0.665	0.000	−0.031	−0.010	−0.012
United Kingdom	0.000	0.529	−0.034	−0.126	0.109	0.173	0.088	0.100
Diagnostics & Robustness								
RMSPE	1.038	0.622	0.767	0.958	2.049	1.987	1.930	2.835
MAPE	0.797	0.447	0.545	0.525	1.647	1.607	1.642	2.329
Estimated bias	...	−0.316	0.089	0.070	...	−0.166	−0.098	0.001
Improv. vs. unif. weights	25.62	55.43	27.33	19.54	30.38	32.46	28.61	5.99
No anticipation (p-val)	0.032	0.029	0.052	0.032	0.328	0.192	0.421	0.032
In-time placebo (p-val)	0.007	0.045	0.116	0.000	0.991	0.787	0.084	0.177

Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations. Note: The p-value for the average treatment on the treated (ATT) unit corresponds to the joint null hypothesis that all effects are zero over the post-intervention period. RMSPE and MAPE represent the pre-intervention root mean squared prediction error and pre-intervention mean absolute prediction error, respectively. When the Augmented SCM is used, the estimated bias from a potentially weak pre-intervention fit is reported. The auxiliary predictors used are the government surplus as a share of GDP and percent changes in M3. The row labeled 'Improv. vs. unif. weights' shows the percentage improvement relative to using uniform weights instead of Synthetic Control weights. The no anticipation test (p-val) provides the p-value for the null hypothesis that the outcome gap was zero one month before FAIT adoption. The in-time placebo test (p-val) tests the null hypothesis that the ATT was zero during the 24-month period between the placebo treatment date (2018:M8) and the actual treatment date (2020:M8). Residualization of outcome variables is conducted using country effects and key macroeconomic factors, including the Global Supply Chain Pressures Index (GSCPI), the Kilian Index, global energy price inflation (ENERGY), international food price inflation (FOOD), government surplus as a share of GDP (GSGDP), M3 growth (M3P), and the overnight rate (ONR). Specifications [4] and [8] exclude Canada from the donor pool as part of a sensitivity analysis.

confidence in our empirical design. Most specifications in Table 1 through Table 2 support the robustness of our design based on this backdating exercise.

3.3.2 Leave-One-Out Test and Potential Spillover Effects

Assessing the robustness of our main findings to variations in country weights and potential bias introduced by spillover effects is crucial. To address this issue, we examine the impact of omitting Canada—the control unit with the largest synthetic weight—in Table 1–Table 3, columns [4] and [8]. In some specifications, excluding a control unit with nonzero weight, such as Canada, results in p-values exceeding 0.1, indicating a measurable impact on ATT estimates and their corresponding p-values.[19]

This finding warrants careful examination, particularly given insights from the SCM literature (e.g., Abadie (2021)), which acknowledges a trade-off between including a control unit potentially affected by the intervention and the potential bias resulting from spillover effects. Abadie (2021) suggests retaining affected control units when the direction of the bias can be anticipated. In our case, including Canada likely introduces a negative bias (understated ATT), as FAIT may have slightly raised Canada's CPI inflation due to its economic integration and geographic proximity to the U.S.

Comparing results with and without Canada in the donor pool (Table 1–Table 2), ATT discrepancies are generally small. However, excluding Canada worsens the pre-intervention fit, increasing RMSPE by the first or second decimal place. This analysis highlights the benefits of retaining Canada in the donor pool to improve pre-intervention fit while recognizing the manageable trade-off posed by potential spillover effects.

To further validate our findings, we refine our approach using the spillover-adjusted SCM method proposed by Cao and Dowd (2019), which explicitly accounts for potential spillover effects. For brevity, we focus on headline CPI inflation, core CPI inflation, short-run inflation expectations, and long-run inflation expectations.[20] The findings suggest that the canonical SCM may slightly underestimate the main effects, but most differences between the intervention effect with Canada and the spillover-adjusted effect remain statistically insignificant. Therefore, whether or not Canada is treated as an affected control unit, our conclusions remain qualitatively unchanged.

3.3.3 Extended Post-Intervention Period

Up to this point, our analysis has intentionally limited the post-intervention period to 2022:M2 to mitigate potential distortions in domestic inflation rates resulting from the Russian invasion of Ukraine and its subsequent effects, particularly on the control units. This event could introduce a downward bias in our estimates beyond that period, even after residualizing outcome gaps using energy prices, due to the diverse idiosyncratic characteristics of the economies under analysis.

To assess the robustness of our findings to this temporal restriction, we extend the post-intervention analysis to 2022:M12, adding ten additional months to cover the full year of 2022. This extension is constrained by the rapid shift in monetary policy toward "higher for longer," prompting private agents to adjust their policy expectations accordingly, recognizing by December 2022—if not earlier—that the "low for longer" strategy post-FAIT had been completely phased out. The revised results continue to confirm the robustness of our initial findings, albeit with slightly lower ATTs. Overall, the ATTs remain positive and statistically significant, particularly for headline inflation and short-term expectations, reinforcing our principal conclusions even when considering a longer post-intervention period.[21]

4 Concluding Remarks

This paper empirically evaluates the impact of FAIT on the U.S. economy. Using the synthetic control method (SCM) to estimate its causal effects on headline and core CPI inflation, we find that inflation rose

[19]For visualization, Figure S3–Figure S4 in the Supplementary Appendix display outcome gaps from these leave-one-out exercises for each control unit.

[20]The results, presented in Figure S5 in the Supplementary Appendix, compare the DTEs of the canonical SCM and the spillover-adjusted SCM, along with their 95% confidence intervals.

[21]See details in Table S3–Table S4 of the Supplementary Appendix.

significantly relative to the counterfactual during the post-FAIT period. Unlike prior SCM applications, we apply the residualization approach of Doudchenko and Imbens (2016) to adjust inflation rates for shared covariates, including monetary and fiscal policy indicators, global supply chain disruptions, commodity prices, and other domestic and global factors.

Our findings support the view that FAIT contributed to the inflation surge—even after accounting for alternative drivers such as pandemic-induced global supply bottlenecks and post-pandemic recovery commodity price increases. Consistent with the FAIT framework, forward guidance on make-up strategies—reinforced by the Fed's September and December 2020 communications on balance sheet normalization and policy rate liftoff—may have tilted expectations toward a prolonged period of low interest rates, contributing to a delayed policy response as inflationary pressures began to build in late 2020 and into 2021.

While an earlier policy response under FIT may not have fully averted the inflationary surge, our results suggest that a timelier intervention could have moderated its magnitude, enabling a more gradual tightening cycle and potentially requiring a lower terminal policy rate to restore price stability.

We find that FAIT's effects were concentrated in inflation and short-term inflation expectations, with limited and statistically insignificant effects on unemployment or industrial production. These results are consistent with a steepening of the Phillips curve in the post-pandemic period, as suggested by the New Keynesian model. However, our findings do not imply that FAIT caused this structural change—only that monetary policy likely operated in a steeper-than-anticipated environment. Given that the effects on real activity are less precisely estimated, any conclusion regarding shifts in the Phillips curve should be interpreted as suggestive rather than definitive.

Appendix

Data Sources

All data is sourced from national agencies used in the Federal Reserve Bank of Dallas' Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)). The dataset is monthly, seasonally adjusted, covering January 2012–December 2022, with the U.S. as the treated country and Canada, Czechia, Israel, New Zealand, Sweden, and the U.K. as control countries.

CPI Inflation (INF): 12-month log change in Consumer Price Index (CPI). Sources: U.S. Bureau of Labor Statistics, Statistics Canada, Czech Statistical Office, Israel Central Bureau of Statistics, Statistics New Zealand, Sweden Statistiska Centralbyran, U.K. Office for National Statistics. *Note*: New Zealand CPI interpolated monthly.

Core CPI Inflation (INFC): 12-month log change in the core CPI (ex. food & energy). Sources as above. *Note*: Czechia and Sweden seasonally adjusted; New Zealand interpolated monthly.

U.S. PCE Inflation (INFPCE): 12-month log change in the PCE deflator. Source: U.S. Bureau of Economic Analysis.

Unemployment Rate (UR): Percentage of active population unemployed. Sources as for CPI. *Note*: New Zealand series interpolated monthly

Overnight Interest Rates (ONR): : End-of-period overnight nominal rates. Sources: U.S. Federal Reserve Board, Bank of Canada, Czech National Bank, Bank of Israel, Reserve Bank of New Zealand, Tullett Prebon Information, Bank of England.

Industrial Production Growth (IPP): 12-month log change in industrial production. Sources as for CPI. *Note*: New Zealand series interpolated monthly.

M3 Growth (M3P): 12-month log change in broad money (M3). Sources: OECD (U.S., Canada), Czech National Bank, Bank of Israel, Reserve Bank of New Zealand, Sveriges Riksbank, Bank of England. *Note*: U.S. data from OECD due to Fed discontinuation in 2006.

Government surplus as a share of GDP (GSGDP): Government net lending as a percent of GDP. Sources: OECD (U.S., Canada, U.K., New Zealand), Eurostat (Czechia, Sweden), Israel Ministry of Finance. *Note*: Data interpolated monthly; Czechia and Israel series seasonally adjusted.

ENERGY, FOOD: 12-month log change in the IMF's energy and food price indices.

Kilian Index (KILIAN): Measures global real economic activity via ocean bulk freight rates. Source: Federal Reserve Bank of Dallas at `https://www.dallasfed.org/research/igrea`. *Note*: Seasonally adjusted.

Global Supply Chain Pressure Index (GSCPI): Measures supply chain conditions using transportation costs and manufacturing indicators. Source: Federal Reserve Bank of New York at `https://www.newyorkfed.org/research/policy/gscpi#/overview`.

Expected CPI Inflation Measures (INFEXP). Mean forecasts from professional forecasters via *Consensus Forecasts*^{TM}. Details at `https://www.consensuseconomics.com`.

Codes. All results are obtained with R 4.2.2. based on Ben-Michael, Feller, and Rothstein (2021)'s R code (07-14-2024 version) posted on `https://github.com/ebenmichael/augsynth`.

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Supplemental Appendix

A Background Details on the U.S. Monetary Policy Framework

At the 2020 Jackson Hole Economic Symposium on August 27, 2020, Federal Reserve Chairman Jerome Powell announced that the Federal Reserve was adopting a new monetary policy framework based on flexible average inflation targeting (FAIT). This framework was formalized in the amended Statement on Longer-Run Goals and Monetary Policy Strategy, outlining the Fed's own interpretation of FAIT.

A key lesson from the Great Inflation of the 1970s and early 1980s was that strong commitment and decisive action were necessary to anchor inflation expectations and control inflation. Although inflation remained above 10% until 1981, Chairman Volcker successfully curbed inflation by maintaining a restrictive monetary stance despite a severe recession. The credibility the Fed earned in the 1980s allowed it greater flexibility in balancing its dual mandate of price stability and full employment in subsequent decades.

Since then, the Federal Reserve's monetary policy framework has evolved with the goal of strengthening its inflation credibility, ensuring that long-term expectations remain anchored while preserving its ability to respond to short-term macroeconomic fluctuations. Long-term CPI inflation expectations progressively stabilized at levels close to, but slightly above, 2% in the 1980s and 1990s. This shift contributed to the Great Moderation, a period of greater macroeconomic stability during which observed inflation averaged around 3%.[22]

Even after the federal funds rate hit the zero lower bound (ZLB) during the 2007–09 Global Financial Crisis (GFC), long-term CPI inflation expectations remained anchored near 2%. However, despite numerous policy efforts, actual CPI inflation persistently undershot the target in the post-GFC period leading up to the COVID-19 pandemic (Caldara et al. (2021)).

In response to concerns over a Japan-style liquidity trap and the potential de-anchoring of long-run inflation expectations, the Fed formally adopted flexible inflation targeting (FIT) in 2012, releasing its first-ever Statement on Longer-Run Goals and Monetary Policy Strategy. This shift was aimed at reinforcing credibility and increasing transparency by explicitly setting a numerical 2% inflation target, thereby validating the private sector's long-standing belief that the Fed's *de facto* inflation target was already 2%.

FIT brought the Fed's monetary policy framework in line with the prevailing consensus among many advanced and emerging economies (Bernanke and Mishkin (1997); Duncan, Martínez-García, and Toledo (2022)). However, persistent below-target inflation remained a concern, prompting the Fed to undertake its first-ever comprehensive review of its monetary policy framework (strategy, tools, and communication practices) in 2019–20.[23]

The Fed's framework review emphasized the risks posed by prolonged periods of below-target inflation at the ZLB. A key concern was that persistent inflation misses might cause households and businesses to perceive the 2% target as a ceiling rather than a midpoint, eroding the Fed's inflation anchor. To counteract this risk, FAIT was introduced on August 27, 2020.

The fundamental change under FAIT was the explicit acceptance of an asymmetric inflation bias—the Fed committed to temporarily allowing inflation to overshoot 2% following prolonged periods of below-

[22]For more on the evolution of U.S. monetary policy during the Great Moderation, see Martínez-García (2018), Martínez-García (2019), and Duncan, Martínez-García, and Coulter (2022).

[23]For details on the Federal Reserve's 2019–20 framework review and the resulting changes to its Statement on Longer-Run Goals and Monetary Policy Strategy, see Board of Governors (2020).

target inflation (make-up strategies).[24] The Fed's stated goal was to preempt a downward shift in long-term inflation expectations, even at the cost of tolerating above-target inflation for some time. The FOMC's revised Statement on Longer-Run Goals and Monetary Policy Strategy explicitly stated:

> "The Committee judges that longer-term inflation expectations that are well anchored at 2 percent foster price stability and moderate long-term interest rates and enhance the Committee's ability to promote maximum employment in the face of significant economic disturbances. In order to anchor longer-term inflation expectations at this level, the Committee seeks to achieve inflation that averages 2 percent over time, and therefore judges that, following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time." Federal Reserve's Statement on Longer-Run Goals and Monetary Policy Strategy amended effective August 27, 2020 (Board of Governors (2020)).

In addition to introducing an inflationary bias, FAIT elevated the importance of the Fed's maximum employment objective. The Statement also added language allowing for a more granular understanding of what achieving full employment meant, emphasizing that it ought to be broad-based and inclusive. The revised statement emphasized that policy decisions should be based on employment shortfalls rather than deviations, signaling a stronger commitment to prioritizing job market conditions (Board of Governors (2020)).

The shift from FIT to FAIT in August 2020 coincided with the beginning of an inflation surge unseen since the Great Inflation of the 1970s and early 1980s. As highlighted by Waller (2022), Bernanke and Blanchard (2023), and Eggertsson and Kohn (2023), this raised concerns about whether FAIT itself played a role in fueling inflation. Beyond the inflationary bias inherent in FAIT, the Fed's forward guidance bend may have further amplified its effects. As Waller (2022) notes:

> "There are some other lessons (...) from the experience of tightening monetary policy, a process which was put in motion by the [forward] guidance that the FOMC issued in 2020 about how long it would keep the federal funds rate at the effective lower bound and continue asset purchases. In September and December of 2020, the FOMC provided criteria or conditions in the meeting statement that would need to be met before the FOMC would consider raising interest rates and begin to reduce asset purchases, respectively. These conditions were, in effect, the FOMC's plan for starting the process of tightening policy.
>
> (...) Based on our positive experience with unwinding after the Global Financial Crisis (GFC), we thought it would be appropriate to use the same sequence of steps: taper asset purchases until they ceased, then lift rates off the effective lower bound, then gradually and passively reduce our balance sheet by redeeming maturing securities.
>
> (...) For asset purchases, the Committee declared that tapering would wait "until substantial further progress has been made toward the Committee's maximum employment and price stability goals." Meanwhile, the FOMC said that it would keep rates near zero until our employment goal had been reached and until inflation had reached 2 percent and was "on track to moderately exceed 2 percent for some time."
>
> (...) Unlike the normalization timeline after the financial crisis, we did not have flexibility to raise the target range sooner. However, if we had less restrictive tapering criteria and had started tapering sooner, the Committee could have had more flexibility on when to begin raising rates. So, by requiring substantial further progress toward maximum employment to even begin the

[24] As Nessen and Vestin (2005) argue, average inflation targeting can have substantial short-run effects by delaying the monetary policy response to inflation fluctuations, thereby preventing an overreaction to transitory inflation shocks.

process of tightening policy [liftoff], one might argue that it locked the Committee into holding the policy rate at the zero lower bound longer than was optimal." Excerpts from Lessons Learned on Normalizing Monetary Policy, speech by Governor Christopher J. Waller, at the Dallas Fed's sponsored policy panel on *Monetary Policy at a Crossroads*, June 18, 2022 (Waller (2022)).

By committing to keeping rates at zero until "substantial further progress" had been made toward maximum employment, the Fed prioritized employment over inflation and effectively removed any ceiling on how high inflation could rise before tightening. Moreover, the sequencing of balance sheet normalization before rate hikes, similar to post-GFC policy, delayed action further. This extended period of "low for longer" policy, reinforced by forward guidance, may have added inertia to the Fed's response and exacerbated inflationary pressures.

The central empirical question is whether make-up strategies under FAIT and the Fed's forward guidance on monetary policy normalization in late 2020 had measurable effects on inflation and employment outcomes. Given FAIT's inherent inflation bias and the Fed's explicit commitment to delaying rate hikes, our analysis focuses on identifying evidence of FAIT's impact on inflation, inflation expectations, and measures of economic activity.

B Insights from the Workhorse New Keynesian Model

This section develops an analytical solution based on the canonical New Keynesian model to examine monetary policy transmission and the anchoring of inflation expectations. The first key contribution lies in showing that the canonical New Keynesian model admits a forward-looking solution for inflation and the output and employment gaps, expressed entirely in terms of current and expected future monetary policy gaps—defined as deviations of the policy rate from its neutral counterpart under flexible prices. This reformulation offers a novel and tractable approach to linking inflation and employment gaps, central to the Federal Reserve's dual mandate, directly to monetary policy choices. It provides a powerful lens through which the role and effectiveness of forward guidance can be studied.

Second, this framework facilitates a counterfactual analysis of alternative policy choices and regimes, as encapsulated in equations (3)–(7) of the paper. These equations are employed to investigate how different monetary policy frameworks—to the extent they shift current and anticipated policy paths—can lead to distinct macroeconomic outcomes. The recursive structure of the weights on current and anticipated future monetary policy gaps permits the examination of the effects of such counterfactuals not only on inflation and real activity, but also on the pass-through into inflation expectations. Understanding how the influence of monetary policy gaps on expectations decays with the forecast horizon is key to evaluating whether expectations remain well-anchored in the long run, and to assessing the efficacy of the monetary transmission mechanism more broadly.

Third, the analysis incorporates the possibility of variation in the slope of the Phillips curve, allowing for a rich exploration of how changes in this structural parameter influence the effects of monetary policy across inflation, output and employment, and inflation expectations. In this respect, the policy shifts under the Federal Reserve's FAIT (Flexible Average Inflation Targeting) framework serve as a quasi-natural experiment. To the extent that FAIT induced or permitted departures from the counterfactual policy path expected under the prior FIT (Flexible Inflation Targeting) regime, the resulting differences in outcomes can be used to test for evidence consistent with a steeper Phillips curve—a hypothesis that has gained traction due to the post-pandemic experience. This intersection of structural parameters, policy design and choices, and expectation formation lies at the heart of the empirical and theoretical contributions that underpin the paper.

The Canonical New Keynesian Model. As described by Woodford (2008), fluctuations in equilibrium inflation around a stochastic trend—anchored by the central bank's target—are induced by nominal rigidities. The Beveridge-Nelson trend, defined as $\pi_t^T \equiv \lim_{j \to +\infty} \mathbb{E}_t(\pi_{t+j})$, aligns with the central bank's target $\overline{\pi}_t$, which is assumed to be incorporated into price-setters' information set. For analytical tractability, $\overline{\pi}_t$ is set to zero and the model is log-linearized around the zero-inflation steady state (as shown in Galí (2015)).[25]

The canonical log-linearized New Keynesian model laid out in Galí (2015)) comprises two primary equations representing aggregate household and firm behavior. The dynamic IS curve (Aggregate Demand) is expressed by

$$x_t = \mathbb{E}_t(x_{t+1}) - \sigma^{-1}\left(i_t - \mathbb{E}_t(\pi_{t+1}) - r_t^n\right), \tag{B1}$$

and the Phillips curve (Aggregate Supply) is given by

$$\pi_t = \beta \mathbb{E}_t(\pi_{t+1}) + \kappa x_t, \tag{B2}$$

where $x_t \equiv (y_t - y_t^n)$ is the output gap, y_t is real output, π_t is inflation, and i_t is the short-term nominal interest rate (the policy rate). Potential output and the short-term natural (real) rate of interest under flexible prices are represented by y_t^n and r_t^n.

Without nominal rigidities, inflation remains at its target in every period t and in steady state, as no exploitable trade-off exists between inflation and real activity. In this scenario, the short-term natural (real) rate of interest r_t^n equates to the short-term nominal interest rate under flexible prices, i_t^n. The latter, often referred to as the neutral rate, serves as the benchmark rate for monetary policy consistent with price stability and full employment.

Additionally, since x_t is proportional to the employment gap, $x_t = (1-\alpha)(n_t - n_t^n)$, where n_t is employment and n_t^n is potential employment under flexible prices, equations (B1)–(B2) can also be expressed in terms of employment.

The key parameters are the discount factor $0 < \beta < 1$, the intertemporal elasticity of substitution $\sigma^{-1} > 0$, which corresponds to the slope of the IS curve, and the slope of the Phillips Curve, defined by $\kappa \equiv \left(\frac{(1-\theta)(1-\beta\theta)}{\theta}\right)\left(\frac{1-\alpha}{1-\alpha+\alpha\varepsilon}\right)\left(\sigma + \frac{\varphi+\alpha}{1+\alpha}\right)$. Here, κ is a composite parameter dependent on β, σ, the Frisch elasticity of labor supply $\varphi^{-1} > 0$, the intratemporal elasticity of substitution between differentiated goods $\varepsilon > 0$ which sets the steady-state price markup $\frac{\varepsilon}{\varepsilon-1}$, the Calvo (1983) price stickiness parameter $0 < \theta < 1$, which determines the average duration of prices $\frac{1}{1-\theta}$, and the returns-to-scale parameter $0 \leq \alpha < 1$.[26]

By focusing on the canonical New Keynesian model, attention is primarily given to the impact on the transmission of monetary policy of potential changes in the slope of the IS and, especially, the Phillips curve, while deliberately abstracting from other factors or shocks that could shift the IS and Phillips curves themselves for the purposes of this analysis.

[25]Under monopolistic competition with Calvo (1983) staggered price-setting, nominal rigidities from price stickiness coexist with distortions from markup pricing. A labor subsidy is suggested to offset the markup, restoring the perfect competition allocation in the steady state.

[26]The parameter α indicates diminishing returns to labor, with linear-in-labor technologies as the special case of constant returns to scale, represented by $\alpha = 0$.

The Forward-Looking Solution. Under the assumption that nominal rigidities vanish asymptotically, the model specified by equations (B1)–(B2) is solved forward, relating the output (or employment) gap and inflation to current and expected future monetary policy gaps given as the deviation between the policy instrument i_t and the benchmark or neutral policy rate i_t^n. This approach relies on the assumption that $\lim_{j\to+\infty} \mathbb{E}_t(\pi_{t+j}) = \overline{\pi}_t = 0$, which ensures that long-term inflation expectations remain anchored to the central bank's inflation target, consistent with the model's steady state.

Using standard (Blanchard-Kahn) recursive substitution methods, the Phillips curve in equation (B2) is rearranged to express x_t as:

$$x_t = \frac{\pi_t - \beta\mathbb{E}_t(\pi_{t+1})}{\kappa}. \tag{B3}$$

This expression is substituted into the IS curve equation (B1), replacing r_t^n with i_t^n:[27]

$$\frac{\pi_t - \beta\mathbb{E}_t(\pi_{t+1})}{\kappa} = \mathbb{E}_t(x_{t+1}) - \sigma^{-1}\left(i_t - \mathbb{E}_t(\pi_{t+1}) - i_t^n\right). \tag{B4}$$

Next, expectations are taken one period forward on equation (B3):

$$\mathbb{E}_t(x_{t+1}) = \frac{\mathbb{E}_t(\pi_{t+1}) - \beta\mathbb{E}_t(\pi_{t+2})}{\kappa}. \tag{B5}$$

Equation (B5) is then substituted back into equation (B4):

$$\frac{\pi_t - \beta\mathbb{E}_t(\pi_{t+1})}{\kappa} = \frac{\mathbb{E}_t(\pi_{t+1}) - \beta\mathbb{E}_t(\pi_{t+2})}{\kappa} - \sigma^{-1}\left(i_t - \mathbb{E}_t(\pi_{t+1}) - i_t^n\right). \tag{B6}$$

Simplifying equation (B6) results in:

$$\pi_t = \left((1+\beta) + \kappa\sigma^{-1}\right)\mathbb{E}_t(\pi_{t+1}) - \beta\mathbb{E}_t(\pi_{t+2}) - \kappa\sigma^{-1}\left(i_t - i_t^n\right), \tag{B7}$$

which forms a second-order expectational difference equation for inflation, π_t, in relation to the monetary policy gap, $(i_t - i_t^n)$.

Expectations are then taken one period forward on equation (B7):

$$\mathbb{E}_t(\pi_{t+1}) = \left((1+\beta) + \kappa\sigma^{-1}\right)\mathbb{E}_t(\pi_{t+2}) - \beta\mathbb{E}_t(\pi_{t+3}) - \kappa\sigma^{-1}\mathbb{E}_t(i_{t+1} - i_{t+1}^n). \tag{B8}$$

Equation (B8) is substituted into equation (B7):

$$\begin{aligned}\pi_t = &\left[\left((1+\beta) + \kappa\sigma^{-1}\right)^2 - \beta\right]\mathbb{E}_t(\pi_{t+2}) \\ &- \left((1+\beta) + \kappa\sigma^{-1}\right)\beta\mathbb{E}_t(\pi_{t+3}) - \kappa\sigma^{-1}\left(i_t - i_t^n\right) \\ &- \kappa\sigma^{-1}\left((1+\beta) + \kappa\sigma^{-1}\right)\mathbb{E}_t(i_{t+1} - i_{t+1}^n).\end{aligned} \tag{B9}$$

Expectations two periods forward on equation (B7) lead to:

$$\mathbb{E}_t(\pi_{t+2}) = \left((1+\beta) + \kappa\sigma^{-1}\right)\mathbb{E}_t(\pi_{t+3}) - \beta\mathbb{E}_t(\pi_{t+4}) - \kappa\sigma^{-1}\mathbb{E}_t(i_{t+2} - i_{t+2}^n). \tag{B10}$$

[27] In the frictionless equilibrium, i_t^n is equated to r_t^n because the expected inflation for next period aligns with the central bank's target and is set to zero.

Substituting equation (B10) into equation (B9) yields:

$$
\begin{aligned}
\pi_t = &\left((1+\beta)+\kappa\sigma^{-1}\right)\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-2\beta\right)\mathbb{E}_t(\pi_{t+3}) \\
&-\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-\beta\right)\beta\mathbb{E}_t(\pi_{t+4}) \\
&-\kappa\sigma^{-1}\left(i_t-i_t^n\right)-\kappa\sigma^{-1}\left((1+\beta)+\kappa\sigma^{-1}\right)\mathbb{E}_t(i_{t+1}-i_{t+1}^n) \\
&-\kappa\sigma^{-1}\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-\beta\right)\mathbb{E}_t(i_{t+2}-i_{t+2}^n).
\end{aligned} \tag{B11}
$$

Advancing expectations three periods forward on equation (B7) results in:

$$
\mathbb{E}_t(\pi_{t+3}) = \left((1+\beta)+\kappa\sigma^{-1}\right)\mathbb{E}_t(\pi_{t+4})-\beta\mathbb{E}_t(\pi_{t+5})-\kappa\sigma^{-1}\mathbb{E}_t(i_{t+3}-i_{t+3}^n). \tag{B12}
$$

Equation (B12) is then substituted into equation (B11):

$$
\begin{aligned}
\pi_t = &\left(\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-2\beta\right)\left((1+\beta)+\kappa\sigma^{-1}\right)^2-\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-\beta\right)\beta\right)\mathbb{E}_t(\pi_{t+4}) \\
&-\left((1+\beta)+\kappa\sigma^{-1}\right)\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-2\beta\right)\beta\mathbb{E}_t(\pi_{t+5}) \\
&-\kappa\sigma^{-1}\left(i_t-i_t^n\right)-\kappa\sigma^{-1}\left((1+\beta)+\kappa\sigma^{-1}\right)\mathbb{E}_t(i_{t+1}-i_{t+1}^n) \\
&-\kappa\sigma^{-1}\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-\beta\right)\mathbb{E}_t(i_{t+2}-i_{t+2}^n) \\
&-\kappa\sigma^{-1}\left((1+\beta)+\kappa\sigma^{-1}\right)\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-2\beta\right)\mathbb{E}_t(i_{t+3}-i_{t+3}^n).
\end{aligned} \tag{B13}
$$

Continuing this approach, expectations four periods forward on equation (B7) are taken:

$$
\mathbb{E}_t(\pi_{t+4}) = \left((1+\beta)+\kappa\sigma^{-1}\right)\mathbb{E}_t(\pi_{t+5})-\beta\mathbb{E}_t(\pi_{t+6})-\kappa\sigma^{-1}\mathbb{E}_t(i_{t+4}-i_{t+4}^n). \tag{B14}
$$

Equation (B14) is substituted into equation (B13):

$$
\begin{aligned}
\pi_t = &\left[\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-2\beta\right)\left((1+\beta)+\kappa\sigma^{-1}\right)^2-2\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-\beta\right)\beta+\beta^2\right]\left((1+\beta)+\kappa\sigma^{-1}\right)\mathbb{E}_t(\pi_{t+5}) \\
&-\left[\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-2\beta\right)\left((1+\beta)+\kappa\sigma^{-1}\right)^2-\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-\beta\right)\beta\right]\beta\mathbb{E}_t(\pi_{t+6}) \\
&-\kappa\sigma^{-1}\left(i_t-i_t^n\right)-\kappa\sigma^{-1}\left((1+\beta)+\kappa\sigma^{-1}\right)\mathbb{E}_t(i_{t+1}-i_{t+1}^n)-\kappa\sigma^{-1}\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-\beta\right)\mathbb{E}_t(i_{t+2}-i_{t+2}^n) \\
&-\kappa\sigma^{-1}\left((1+\beta)+\kappa\sigma^{-1}\right)\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-2\beta\right)\mathbb{E}_t(i_{t+3}-i_{t+3}^n) \\
&-\kappa\sigma^{-1}\left[\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-2\beta\right)\left((1+\beta)+\kappa\sigma^{-1}\right)^2-\left(\left((1+\beta)+\kappa\sigma^{-1}\right)^2-\beta\right)\beta\right]\mathbb{E}_t(i_{t+4}-i_{t+4}^n),
\end{aligned} \tag{B15}
$$

and so on.

More generally, the recursion given by equation (B15) can be expressed as:

$$
\begin{aligned}
\pi_t \quad = \quad &\psi_5\mathbb{E}_t(\pi_{t+5})-\beta\psi_4\mathbb{E}_t(\pi_{t+6}) \\
&-\kappa\sigma^{-1}\psi_0(i_t-i_t^n)-\kappa\sigma^{-1}\psi_1\mathbb{E}_t(i_{t+1}-i_{t+1}^n)-\kappa\sigma^{-1}\psi_2\mathbb{E}_t(i_{t+2}-i_{t+2}^n) \\
&-\kappa\sigma^{-1}\psi_3\mathbb{E}_t(i_{t+3}-i_{t+3}^n)-\kappa\sigma^{-1}\psi_4\mathbb{E}_t(i_{t+4}-i_{t+4}^n),
\end{aligned} \tag{B16}
$$

where the weights ψ_j correspond to the weights given by this recurrence relation:

$$\begin{aligned} \psi_j &= \left((1+\beta)+\kappa\sigma^{-1}\right)\psi_{j-1}-\beta\psi_{j-2}, \quad \forall j \geq 1, \\ \psi_0 &= 1, \quad \psi_{-1}=0. \end{aligned} \tag{B17}$$

Hence, if the recursion in (B16) is expanded forward to express inflation solely in terms of current and expected future monetary policy gaps, inflation follows the general recursive representation:

$$\pi_t = -\kappa\sigma^{-1}\sum_{j=0}^{+\infty}\psi_j \mathbb{E}_t\left(i_{t+j}-i^n_{t+j}\right). \tag{B18}$$

For the general recursive form in (B18) to hold, that requires the following limiting condition to hold:

$$\lim_{j\to\infty}\left(\psi_j\mathbb{E}_t(\pi_{t+j})-\beta\psi_{j-1}\mathbb{E}_t(\pi_{t+j+1})\right)=0, \tag{B19}$$

which ensures that long-term inflation expectations are not out of bounds and deviate from the central bank target: $\lim_{j\to+\infty}\mathbb{E}_t(\pi_{t+j})=\overline{\pi}_t=0$.

By substituting (B18) together with (B17) into the Phillips curve in (B3), the following expression for the output gap is obtained:

$$x_t = -\sigma^{-1}\sum_{j=0}^{+\infty}\psi_j\mathbb{E}_t\left(i_{t+j}-i^n_{t+j}\right)+\beta\sigma^{-1}\sum_{j=0}^{+\infty}\psi_j\mathbb{E}_t\left(i_{t+1+j}-i^n_{t+1+j}\right). \tag{B20}$$

By redefining the summation index $k=j+1$, this expression can be rewritten as:

$$x_t = -\sigma^{-1}\sum_{j=0}^{+\infty}\psi_j\mathbb{E}_t\left(i_{t+j}-i^n_{t+j}\right)+\beta\sigma^{-1}\sum_{k=1}^{+\infty}\psi_{k-1}\mathbb{E}_t\left(i_{t+k}-i^n_{t+k}\right). \tag{B21}$$

Rewriting the second summation back in terms of j, the output gap solution is expressed in general recursive form as:

$$x_t = -\sigma^{-1}\sum_{j=0}^{+\infty}\gamma_j\mathbb{E}_t\left(i_{t+j}-i^n_{t+j}\right), \tag{B22}$$

where the weights γ_j are given by:

$$\gamma_j = \psi_j - \beta\psi_{j-1}, \quad \forall j \geq 0. \tag{B23}$$

This result demonstrates that, if the limit condition in (B19) holds, inflation π_t as given by (B17)–(B18), the output gap x_t from (B22)–(B23), and, through $x_t=(1-\alpha)\left(n_t-n^n_t\right)$, the employment gap, are all fully determined by current and expected deviations of the policy rate i_t from the neutral rate i^n_t.

The Limiting Condition and the Central Bank Target. Given the recursion and initial conditions for the weights ψ_j specified in (B17), we begin by solving the second-order characteristic equation:

$$r^2-((1+\beta)+\kappa\sigma^{-1})r+\beta=0, \tag{B24}$$

whose discriminant satisfies that $\Delta \equiv ((1+\beta)+\kappa\sigma^{-1})^2-4\beta > 0$ under the maintained parameter assumptions $0 < \beta < 1$, $\sigma^{-1} > 0$, and $\kappa > 0$. The roots are determined as follows:

$$r_1 = \frac{((1+\beta)+\kappa\sigma^{-1}) + \sqrt{((1+\beta)+\kappa\sigma^{-1})^2 - 4\beta}}{2}, \quad r_2 = \frac{((1+\beta)+\kappa\sigma^{-1}) - \sqrt{((1+\beta)+\kappa\sigma^{-1})^2 - 4\beta}}{2}, \tag{B25}$$

such that $r_1 > r_2 > 0$. Consequently, the general solution for the weights ψ_j is:

$$\psi_j = Ar_1^j + Br_2^j. \tag{B26}$$

Employing the initial conditions, we derive the system of equations: $1 = A + B$, and $(1+\beta)+\kappa\sigma^{-1} = Ar_1 + Br_2$; leading to the coefficients:

$$A = \frac{(1+\beta)+\kappa\sigma^{-1} - r_2}{r_1 - r_2}, \quad B = \frac{r_1 - (1+\beta) - \kappa\sigma^{-1}}{r_1 - r_2}, \tag{B27}$$

or, simply put:

$$A = \frac{r_1}{\sqrt{((1+\beta)+\kappa\sigma^{-1})^2 - 4\beta}}, \quad B = -\frac{r_2}{\sqrt{((1+\beta)+\kappa\sigma^{-1})^2 - 4\beta}}. \tag{B28}$$

The analytical expression for the weights ψ_j then becomes:

$$\psi_j = \left(\frac{1}{\sqrt{((1+\beta)+\kappa\sigma^{-1})^2 - 4\beta}}\right)\left[r_1^{j+1} - r_2^{j+1}\right]. \tag{B29}$$

To assess whether the sequence ψ_j given in (B29) converges or diverges as $j \to \infty$, we evaluate the magnitudes of the roots r_1 and r_2. If either root exceeds a magnitude of 1, the sequence diverges. The sum and product of the roots are given by:

$$\begin{aligned} r_1 + r_2 &= (1+\beta)+\kappa\sigma^{-1}, && \text{(B30)} \\ r_1 r_2 &= \beta. && \text{(B31)} \end{aligned}$$

Given $0 < \beta < 1$, conditions for convergence are met if $\kappa\sigma^{-1}$ remains small enough to maintain: $1+\beta < (1+\beta)+\kappa\sigma^{-1} < 2$, keeping both r_1 and r_2 within the unit circle. This condition is necessary for stability, yet often violated in practical settings, where: $(1+\beta)+\kappa\sigma^{-1} > 2$, leading to potential divergence (at least one explosive root).

This highlights the critical nature of monetary policy forward guidance and the necessity for the central bank to anchor long-term inflation expectations effectively at the target, i.e., $\lim_{j\to+\infty} \mathbb{E}_t(\pi_{t+j}) = \overline{\pi}_t = 0$. Implementing a reaction function in the spirit of the Taylor (1993) rule is imperative for ensuring that the policy rate returns to its neutral level promptly, closing the monetary policy gap and avoiding destabilizing outcomes.

This is consistent with the Blanchard-Kahn conditions, which necessitate a robust response to deviations in inflation from target to avert expectation-driven explosive outcomes, thus securing determinacy and uniqueness of equilibrium under the selected policy rule. It's critical to recognize that while any monetary policy framework defines broad strategic objectives and key constraints, it also allows policymakers considerable flexibility in adopting various policy rules and paths, leading to diverse outcomes in practice, even if major objectives of the monetary policy framework like maintaining well-anchored long-term inflation expectations are met.

Therefore, the evaluation of the new FAIT framework's adoption raises two pivotal questions: First, to what extent did FAIT limit policies that would have been viable under the previous regime? Second, how profoundly did FAIT influence the actual conduct of monetary policy, irrespective of whether it formally constrained the policy path? These questions are fundamental to our analysis, as the adoption of "make-up" strategies within FAIT, combined with the strategic approach to not overreact to perceived transitory inflation spikes, may have significantly altered the practical conduct of monetary policy. This could explain the notable differences in outcomes when comparing the performance under FAIT against that of other central banks that retained the FIT framework. This shift in the conduct of policy goes beyond mere recognition in strategic policy formulation under the new framework.

Policy Transmission and the Slope of the Phillips Curve. The forward-looking solution, validated under the limiting condition in (B19), critically underpins policy analysis by evaluating the effects on inflation and economic activity of anticipated policy rate changes relative to the neutral rate. This solution not only substantiates the use of forward guidance as a policy tool but also emphasizes the distinct roles of the Phillips curve and IS curve slopes, κ and σ^{-1} respectively, which are fundamental to understanding the monetary policy transmission mechanism.

Firstly, analyzing the effects of the Phillips curve slope κ on the model's forward-looking solution reveals its dual impact: altering the inflation scaling factor and adjusting the weights influencing monetary policy gaps' effect on inflation and output (and employment) gaps. The derivative of the weight ψ_j with respect to κ, denoted $\Psi_j \equiv \frac{\partial \psi_j}{\partial \kappa}$, is computed by differentiating the recurrence in (B17). Ψ_j satisfies the recursion:

$$\Psi_j = \left((1+\beta) + \kappa\sigma^{-1}\right)\Psi_{j-1} + \sigma^{-1}\psi_{j-1} - \beta\Psi_{j-2}, \quad \forall j \geq 2, \tag{B32}$$

with initial conditions:

$$\Psi_0 = 0, \quad \Psi_1 = \sigma^{-1}. \tag{B33}$$

The related $\Gamma_j \equiv \frac{\partial \gamma_j}{\partial \kappa}$, representing the derivative of γ_j with respect to κ, is obtained after differentiating the recurrence in (B23). Γ_j is given by the recursion:

$$\Gamma_j = \Psi_j - \beta\Psi_{j-1}, \quad \forall j \geq 1, \tag{B34}$$

with initial conditions:

$$\Gamma_0 = \Psi_0 = 0, \quad \Gamma_1 = \Psi_1 = \sigma^{-1}. \tag{B35}$$

These derivatives demonstrate that κ not only scales the impact of monetary policy gaps on inflation but subtly modifies the transmission of expected future policy gaps across all endogenous variables, enhancing our understanding of forward guidance's complex and nonlinear effects under different Phillips curve slope scenarios.

Secondly, a quantitative exploration of κ's influence on monetary policy effectiveness leverages standard (pre-pandemic) parameterizations, drawing on the referential work of Galí (2015). The baseline calibration sets preference parameters with $\beta = 0.99$ indicating a steady-state annualized real return $((\frac{1}{\beta})^4 - 1)$ of approximately 4%; $\sigma = 1$ for log utility; and $\phi = 1$ reflecting unitary Frisch elasticity of labor supply, though exploring $\phi = 3$ accommodates a broader range observed in New Keynesian models.[28] The capital share α is preset at $\frac{1}{3}$, implying a two-thirds labor share, with variations like $\alpha = \frac{1}{4}$ considered to bring the labor share up to three-quarters. The elasticity of substitution among differentiated goods is set at $\varepsilon = 11$, corresponding to a 10% steady-state markup consistent with the business cycle literature, though $\varepsilon = 6$ is also considered for a higher 20% markup as preferred by Galí (2015). Price stickiness is modeled by $\theta = \frac{3}{4}$, reflecting an average price duration of four quarters in line with empirical pre-pandemic findings, whereas $\theta = \frac{2}{3}$ indicates more frequent price adjustments, happening every three quarters on average.

Using the baseline calibration $\beta = 0.99$, $\sigma = \phi = 1$, $\alpha = \frac{1}{3}$, $\varepsilon = 11$, and $\theta = \frac{3}{4}$, the slope of the Phillips curve is $\kappa = 0.02641$. Reducing θ to $\frac{2}{3}$ increases the frequency of price adjustments, raising κ to 0.052308. A further increase in ϕ to 3, which decreases labor supply responsiveness to real wage changes, elevates the slope to $\kappa = 0.091538$. Decreasing ε to 6, which corresponds to a 20% markup, further steepens the slope to $\kappa = 0.14875$. Lastly, increasing the labor share to $1 - \alpha = \frac{3}{4}$ pushes κ to 0.204.[29] This analysis suggests that κ's range from a relatively flat 0.02641 to a steeper 0.204 reflects significant variability in Phillips curve steepness, nearly tenfold based on plausible pre-pandemic values.

Before the pandemic, the standard parameterization of the New Keynesian model, with $\kappa = 0.02641$, reinforced the conventional view that the Phillips curve was relatively flat. However, post-pandemic structural adjustments—including more frequent price adjustments, diminished labor supply responsiveness to real wage changes, increased markups, and a higher labor share—suggest a potentially steeper Phillips curve, probably approaching $\kappa = 0.204$. These shifts, even when analyzed using pre-pandemic parameter values, suggest a substantial modification in the dynamics of the model, a hypothesis that is consistent with this paper's findings.

The apparent steepening of the Phillips curve during the pandemic might reflect more complex, nonlinear dynamics. Shifts in aggregate supply and demand could have temporarily nudged the economy onto a steeper segment of the Phillips curve. Consequently, it is important to recognize that this steepening might be transient if economic conditions revert to a flatter segment of the curve. This insight is particularly relevant because it means that current inflationary patterns and real economic activity trade-offs might not reliably forecast future dynamics if the underlying economic structure returns to its earlier norm over time.

Employing $\beta = 0.99$, $\sigma^{-1} = 1$ (indicating the slope of the IS curve), and κ values ranging from 0.02641 to 0.204 to reflect the varying steepness of the Phillips curve, we quantify the effects of monetary policy gaps on inflation and the output gap over a three-year period, spanning quarters $j = 0, ..., 11$. This duration typically exceeds the conventional timeframe of forward guidance. Notably, the extended monetary accommodation post-pandemic was curtailed earlier as inflation exceeded 2% by 2021, prompting a policy reversal by March

[28] Frisch elasticity, measured by ϕ^{-1}, denotes labor supply's responsiveness to real wage changes, keeping wealth's marginal utility constant. While $\phi = 1$ is standard as noted in Galí (2015), $\phi = 3$ implies a lower Frisch elasticity of $\frac{1}{3}$, aligning more closely with empirical evidence from micro-level data suggesting lower responsiveness.

[29] With the baseline calibration, the characteristic equation roots from (B24) for $\kappa = 0.02641$ are $r_1 = 1.1709$ and $r_2 = 0.84549$. Reducing θ to $\frac{2}{3}$ adjusts κ to 0.052308, changing the roots to $r_1 = 1.2508$ and $r_2 = 0.79147$. An increase in ϕ to 3 raises κ to 0.091538, with resultant roots $r_1 = 1.3461$ and $r_2 = 0.73548$. Decreasing ε to 6 for $\kappa = 0.14875$ yields roots $r_1 = 1.4612$ and $r_2 = 0.6775$. Finally, increasing the capital share to $\alpha = \frac{1}{4}$ for $\kappa = 0.204$ results in $r_1 = 1.5590$ and $r_2 = 0.63504$. Across this spectrum of κ values, one root consistently remains outside the unit circle, indicating inherent instability in the forward-looking solutions. Therefore, ensuring economic stability necessitates firmly anchoring long-term expectations and timely closure of the monetary policy gap. Failure to do so, especially under prolonged deviations from the neutral rate, would likely manifest in a rapid onset of instability.

2022, exactly two years after the pandemic's onset in the U.S. The impacts of a one-unit change in both current and expected monetary policy gaps are detailed in Table B1.

This table underscores the efficacy of forward guidance within the New Keynesian model by demonstrating that anticipated monetary policy gaps have a progressively greater impact on current endogenous variables the further into the future they extend, particularly amplifying the effects on inflation relative to the output gap at extended horizons. This highlights the critical nature of timing in policy implementation to minimize the economic costs associated with reducing inflation. Postponing interest rate hikes above the neutral rate, rather than immediate action, enhances their inflationary impact, allowing for smaller policy adjustments to achieve the same reduction in inflation and a reduced sacrifice ratio—the necessary output loss for a specified decrease in inflation. Conversely, providing monetary accommodation sooner, ideally immediately, offers a substantial boost to economic activity with lesser inflationary consequences than relying on forward guidance would. These results hold true qualitatively irrespective of whether the Phillips curve's slope (κ) is flat or steep.

The table also illustrates that maintaining "low for longer" rates intensifies inflationary pressures when prolonged monetary accommodation is announced, as opposed to direct monetary action through significant rate cuts below the neutral rate. Notably, forward guidance cannot perfectly substitute for immediate monetary accommodation, especially under zero-lower bound constraints that limit immediate policy actions, compelling reliance on forward guidance. Conversely, a "high for longer" strategy to combat inflation proves advantageous, necessitating smaller rate increases for the same inflation reduction, achieving this with lower negative impacts on output and employment. Therefore, forward guidance is asymmetrically effective, less so in providing accommodation but more so in tightening.

Moreover, the influence of the Phillips curve's slope on the differential effects of expected monetary policy gaps on inflation versus output is pronounced. As Table B1 shows, a steeper Phillips curve significantly heightens the inflationary effects of forward guidance compared to its impact on economic activity, effectively reducing the sacrifice ratio—the output adjustment needed to achieve a comparable change in inflation. Thus, if the Phillips curve has steepened since the pandemic, this would have markedly escalated the inflationary costs associated with the "low for longer" policies initiated after FAIT's introduction in August 2020 and with the subsequent guidelines on balance sheet normalization in September and December of 2020 (Waller (2022)). The soft-landing path that emerged after the policy shift in March 2022 likely resulted more from the increased effectiveness of "high for longer" strategies in managing inflation with reduced output costs within a steep Phillips curve environment, rather than from the initial aggressiveness of the Federal Reserve.

Furthermore, the inflation risks linked to prolonged accommodative stances or perceived delays in policy tightening under FAIT are heightened in scenarios with a steeper Phillips curve, a situation that may be difficult to recognize in real-time. Lessons from the post-GFC era, which highlighted the potential benefits of more assertive monetary policy if a flatter-than-anticipated Phillips curve had been identified earlier (as discussed in Caldara et al. (2021)), could have been misapplied during the pandemic. In maintaining a "low for long" strategy after reaching the zero-lower bound, policymakers, assuming a flat Phillips curve, may have underestimated the inflationary impacts of "make-up" strategies aimed at counteracting pre-pandemic low inflation. This may have fueled the inflation surge due to aggressive early policy accommodation. Not dispelling expectations of a slow policy response quickly may have inadvertently amplified those inflationary pressures, particularly in a steep Phillips curve scenario.

In summary, the introduction of FAIT and supplementary balance sheet guidance may have also modified monetary policy responses to inflation compared to the FIT regime. FAIT could have opened up the door to more assertive expansionary forward guidance at the zero-lower bound, sidestepping earlier tendencies towards excessive caution in providing accommodation. However, such a policy might have been more effective had the Phillips curve not steepened beyond its pre-pandemic level.[30]

[30]The analysis in this paper complements the structural approach of Duncan, Martínez-García, and Coulter (2022), which examines FAIT's implications for cyclical inflation through the two-country New Keynesian DSGE model of Martínez-García and Wynne (2010) and Martínez-García (2019). That structural model describes pre-FAIT monetary policy using a Taylor (1993) rule, augmented with monetary policy news shocks Del Negro, Giannoni, and Patterson (2012), allowing for different ways of responding to past misses under FAIT via moving averages of past inflation.

Table B1. Weight on the Monetary Policy Gap at Horizon j:

			$j=0$	$j=1$	$j=2$	$j=3$	$j=4$	$j=5$	$j=6$	$j=7$	$j=8$	$j=9$	$j=10$	$j=11$
$\beta=0.99$, $\sigma=1$, $\kappa=0.026$														
Inflation	$-\kappa\sigma^{-1}\psi_j$	$=$	-0.026	-0.053	-0.081	-0.111	-0.144	-0.180	-0.220	-0.266	-0.318	-0.378	-0.448	-0.528
Output Gap	$-\sigma^{-1}\gamma_j$	$=$	-1.000	-1.026	-1.080	-1.161	-1.272	-1.416	-1.595	-1.815	-2.081	-2.398	-2.776	-3.224
$\frac{\text{Output Gap}}{\text{Inflation}}$	$\frac{-\sigma^{-1}\gamma_j}{-\kappa\sigma^{-1}\psi_j}$	$=$	37.879	19.257	13.297	10.449	8.858	7.886	7.257	6.833	6.545	6.345	6.203	6.104
$\beta=0.99$, $\sigma=1$, $\kappa=0.052$														
Inflation	$-\kappa\sigma^{-1}\psi_j$	$=$	-0.052	-0.107	-0.166	-0.234	-0.313	-0.408	-0.523	-0.665	-0.840	-1.057	-1.327	-1.664
Output Gap	$-\sigma^{-1}\gamma_j$	$=$	-1.000	-1.052	-1.159	-1.326	-1.560	-1.873	-2.281	-2.804	-3.469	-4.309	-5.366	-6.692
$\frac{\text{Output Gap}}{\text{Inflation}}$	$\frac{-\sigma^{-1}\gamma_j}{-\kappa\sigma^{-1}\psi_j}$	$=$	19.118	9.850	6.966	5.663	4.978	4.589	4.358	4.218	4.132	4.078	4.044	4.023
$\beta=0.99$, $\sigma=1$, $\kappa=0.092$														
Inflation	$-\kappa\sigma^{-1}\psi_j$	$=$	-0.092	-0.191	-0.306	-0.448	-0.630	-0.868	-1.183	-1.603	-2.165	-2.921	-3.935	-5.301
Output Gap	$-\sigma^{-1}\gamma_j$	$=$	-1.000	-1.092	-1.282	-1.588	-2.036	-2.667	-3.535	-4.718	-6.320	-8.486	-11.406	-15.342
$\frac{\text{Output Gap}}{\text{Inflation}}$	$\frac{-\sigma^{-1}\gamma_j}{-\kappa\sigma^{-1}\psi_j}$	$=$	10.924	5.729	4.190	3.542	3.231	3.072	2.988	2.943	2.919	2.906	2.898	2.894
$\beta=0.99$, $\sigma=1$, $\kappa=0.149$														
Inflation	$-\kappa\sigma^{-1}\psi_j$	$=$	-0.149	-0.318	-0.533	-0.825	-1.237	-1.829	-2.688	-3.937	-5.759	-8.420	-12.307	-17.985
Output Gap	$-\sigma^{-1}\gamma_j$	$=$	-1.000	-1.149	-1.467	-2.000	-2.825	-4.063	-5.892	-8.580	-12.516	-18.276	-26.696	-39.003
$\frac{\text{Output Gap}}{\text{Inflation}}$	$\frac{-\sigma^{-1}\gamma_j}{-\kappa\sigma^{-1}\psi_j}$	$=$	6.723	3.611	2.751	2.423	2.283	2.221	2.192	2.179	2.173	2.171	2.169	2.169
$\beta=0.99$, $\sigma=1$, $\kappa=0.204$														
Inflation	$-\kappa\sigma^{-1}\psi_j$	$=$	-0.204	-0.448	-0.780	-1.268	-2.010	-3.155	-4.932	-7.698	-12.006	-18.720	-29.185	-45.500
Output Gap	$-\sigma^{-1}\gamma_j$	$=$	-1.000	-1.204	-1.652	-2.432	-3.700	-5.710	-8.865	-13.798	-21.495	-33.501	-52.220	-81.405
$\frac{\text{Output Gap}}{\text{Inflation}}$	$\frac{-\sigma^{-1}\gamma_j}{-\kappa\sigma^{-1}\psi_j}$	$=$	4.902	2.690	2.117	1.917	1.840	1.810	1.798	1.793	1.790	1.790	1.789	1.789

Note: All values are rounded to three decimal places. The sacrifice ratio, which represents the trade-off between the output gap and inflation, quantifies the inherent compromises in monetary policy. Since monetary policy does not affect potential output, any impact on the output gap arises solely from monetary policy effects on actual output. Thus, the sacrifice ratio effectively measures the trade-off between output and inflation.

The Pass-Through Into Inflation Expectations. Given that the forward-looking solution for inflation can be expressed in recursive form as in (B18), it follows naturally that:

$$
\begin{aligned}
\mathbb{E}_t(\pi_{t+\tau}) &= -\kappa\sigma^{-1} \sum_{j=0}^{+\infty} \psi_j \, \mathbb{E}_t(i_{t+j+\tau} - i^n_{t+j+\tau}) \\
&= -\kappa\sigma^{-1} \sum_{j=0}^{+\infty} \left(\frac{\psi_j}{\psi_{j+\tau}} \right) \psi_{j+\tau} \, \mathbb{E}_t(i_{t+j+\tau} - i^n_{t+j+\tau}), \quad \forall \, \tau \geq 1, \qquad \text{(B36)}
\end{aligned}
$$

where the weights ψ_j satisfy the recurrence relation in (B17). The parameter τ denotes the forecast horizon for inflation. While interest typically centers on shorter-term inflation expectations, as $\tau \to \infty$, long-run inflation expectations reflect only monetary policy gaps further into the future, and converge to the zero-inflation steady state targeted by the central bank—–assuming the policy gap closes for that to happen.

Several key inferences follow from equation (B36):

First, current monetary policy gaps do not directly influence future inflation expectations. Rather, it is the expected path of the policy gap that matters—–more precisely, expectations about that path at and beyond the forecast horizon τ. Anticipated policy shifts that occur before τ should not influence expectations at that horizon. This underscores the central role of forward guidance. If policy rates are expected to remain "lower for longer"—–as was widely perceived during the early stages of the COVID-19 pandemic following the Federal Reserve's adoption of FAIT—–then not only are current inflation outcomes affected, but expectations over the horizon targeted by forward guidance are also shaped accordingly. Still, expectations remain anchored in the long run, provided the policy gap is closed appropriately and the central bank's credibility is preserved—assumptions that are embedded in the model and consistent with empirical evidence.

Second, the effect of expected monetary policy gaps on inflation expectations, as captured by (B36), is governed by two components. One is $\psi_{j+\tau}$, which also determines the impact of future policy gaps on actual inflation. The other is the ratio $\frac{\psi_j}{\psi_{j+\tau}}$, which scales the influence of those future policy gaps on inflation expectations relative to actual inflation. From the analytical solution in (B29), this ratio admits the following limiting form:

$$
\lim_{j \to +\infty} \frac{\psi_j}{\psi_{j+\tau}} = \frac{1}{r_1^\tau}, \quad \text{with} \quad r_1 = \frac{\left((1+\beta) + \kappa\sigma^{-1}\right) + \sqrt{((1+\beta) + \kappa\sigma^{-1})^2 - 4\beta}}{2} > 0. \qquad \text{(B37)}
$$

More generally, the ratio may be expressed as:

$$
\frac{\psi_j}{\psi_{j+\tau}} = \frac{r_1^{j+1} - r_2^{j+1}}{r_1^{j+1+\tau} - r_2^{j+1+\tau}} = \frac{1}{r_1^\tau} \cdot \frac{1 - \left(\frac{r_2}{r_1}\right)^{j+1}}{1 - \left(\frac{r_2}{r_1}\right)^{j+1+\tau}}, \qquad \text{(B38)}
$$

where $r_2 = \frac{(1+\beta) + \kappa\sigma^{-1} - \sqrt{((1+\beta) + \kappa\sigma^{-1})^2 - 4\beta}}{2}$. Since $\frac{r_2}{r_1} < 1$, it follows that $\left(\frac{r_2}{r_1}\right)^j \to 0$ as $j \to +\infty$, which confirms the limiting result in (B37).

The condition $r_1 < 1$, necessary for ensuring stability of the forward-looking solution, requires that $(1+\beta) + \kappa\sigma^{-1} < 2$. However, this is typically violated in practice, where the composite term often exceeds

2. As a result, the solution may exhibit explosive dynamics with $r_1 > 1$ and, in that case, the influence of long-horizon monetary policy gaps on short-term inflation expectations is underweighted by $\frac{1}{r_1^\tau} < 1$ relative to their impact on actual inflation and decays as τ grows.

The initial value of the ratio sequence, given by $\frac{\psi_0}{\psi_\tau}$, is strictly positive and lower than 1 for any $\tau > 0$, since $\psi_0 = 1$ and $\psi_\tau > 0$ and strictly increasing in τ under regular parameterizations. Moreover, because $r_1 > r_2 > 0$ implies the sequence $\left(\frac{r_2}{r_1}\right)^j$ is strictly decreasing in j, it follows that the function $f(j) := \frac{1-\left(\frac{r_2}{r_1}\right)^{j+\tau}}{1-\left(\frac{r_2}{r_1}\right)^{j}}$ is strictly increasing in j.[31] This then implies that: $\frac{\psi_j}{\psi_{j+\tau}} < \frac{\psi_{j+1}}{\psi_{j+1+\tau}}, \quad \forall j \geq 0, \tau > 0$, which confirms that the ratio sequence $\frac{\psi_j}{\psi_{j+\tau}}$ is strictly increasing in j for any given $\tau > 0$.

In practical terms, this result implies that the influence of future expected monetary policy gaps on inflation expectations is attenuated relative to their effect on actual inflation, but becomes relatively stronger at longer horizons than at shorter ones. Near-term policy gaps—those at or above and close to $j + \tau$—are downweighted more heavily than distant ones. Consequently, forward guidance involving "lower for longer" commitments is expected to exert a stronger influence on near-term inflation expectations, especially due to its duration. Hence, the potency of forward guidance at long horizons is all the more important in shaping expectations.

Third, the slope of the Phillips curve κ plays a critical role in mediating the strength of this effect. To illustrate, consider two parameterizations: a flat Phillips curve with $\beta = 0.99$, $\sigma = 1$, and $\kappa = 0.026$, and a steep Phillips curve with $\beta = 0.99$, $\sigma = 1$, and $\kappa = 0.204$. Under the flat case, the limiting value of the ratio sequence is approximately $\frac{1}{r_1^\tau} \approx 0.8551^\tau$, while in the steep case, the limit falls to $\frac{1}{r_1^\tau} \approx 0.6415^\tau$. This suggests that a steeper Phillips curve diminishes the transmission of forward guidance into inflation expectations.

Together, these results indicate that both the structure of expectations and the slope of the Phillips curve jointly determine the effectiveness and persistence of monetary policy's influence on short-run inflation expectations. Although a steeper Phillips curve reduces the strength of forward guidance effects on inflation expectations, those effects remain sizable—converging to approximately two-thirds the size of the impact on actual inflation at very short horizons, but fading quickly at medium-term horizons, in line with empirical evidence.

[31] Define $f(j) := \frac{1-x^{j+\tau}}{1-x^j}$, with $x := \frac{r_2}{r_1} \in (0,1)$. Then, $f(j+1) - f(j) = \frac{1-x^{j+1+\tau}}{1-x^{j+1}} - \frac{1-x^{j+\tau}}{1-x^j}$. Cross-multiplying and simplifying gives: $(1-x^{j+1+\tau})(1-x^j) - (1-x^{j+\tau})(1-x^{j+1}) = (x^{j+\tau} - x^{j+1+\tau}) + (x^{j+1} - x^j) > 0$, since both terms are positive. Thus, $f(j)$ is strictly increasing in j.

C Supplementary Tables and Figures

Table S1. Descriptive Statistics

Variable/Unit	Period	Mean	Median	Min.	Max.	Std. Dev.
CPI Inflation (%)						
U.S.	Pre-intervention	1.58	1.70	−0.23	2.96	0.76
U.S.	Post-intervention	5.28	6.05	1.16	8.56	2.65
U.S.	Full period	2.39	1.76	−0.23	8.56	2.08
Control group	Pre-intervention	1.27	1.36	−1.60	3.67	1.00
Control group	Post-intervention	4.67	3.81	−0.80	16.42	3.83
Control group	Full period	2.01	1.51	−1.60	16.42	2.44
PCE Inflation (%)						
U.S.	Pre-intervention	1.34	1.45	0.04	2.54	0.59
U.S.	Post-intervention	4.49	5.27	1.11	6.88	2.05
U.S.	Full period	2.03	1.53	0.04	6.88	1.70
Control group	Pre-intervention	1.27	1.36	−1.60	3.67	1.00
Control group	Post-intervention	4.67	3.81	−0.80	16.42	3.83
Control group	Full period	2.01	1.51	−1.60	16.42	2.44
Core CPI Inflation (%)						
U.S.	Pre-intervention	1.94	1.97	1.17	2.35	0.26
U.S.	Post-intervention	4.20	4.49	1.28	6.43	1.87
U.S.	Full period	2.44	2.04	1.17	6.43	1.29
Control group	Pre-intervention	1.22	1.28	−0.89	3.64	0.82
Control group	Post-intervention	3.99	3.40	−0.31	13.76	3.09
Control group	Full period	1.82	1.42	−0.89	13.76	1.98
Short-term Expected Inflation (%)						
U.S.	Pre-intervention	1.72	1.80	−0.11	2.77	0.61
U.S.	Post-intervention	4.79	5.41	0.64	8.07	2.33
U.S.	Full period	2.39	1.90	−0.11	8.07	1.75
Control group	Pre-intervention	1.56	1.61	−0.56	3.40	0.73
Control group	Post-intervention	4.20	3.14	−0.66	15.10	3.47
Control group	Full period	2.14	1.73	−0.66	15.10	2.06

Note: Table continues on the next page.

Table S1. Descriptive Statistics (Cont.)						
Variable/Unit	Period	Mean	Median	Min.	Max.	Std. Dev.
Short/medium-term Expected Inflation (%)						
U.S.	Pre-intervention	1.67	1.82	0.11	2.54	0.67
U.S.	Post-intervention	4.60	4.38	0.86	8.08	2.57
U.S.	Full period	2.31	1.93	0.11	8.08	1.80
Control group	Pre-intervention	1.46	1.58	−0.50	3.36	0.82
Control group	Post-intervention	3.92	2.83	−0.60	15.70	3.47
Control group	Full period	2.00	1.69	−0.60	15.70	2.05
Medium-term Expected Inflation (%)						
U.S.	Pre-intervention	2.06	2.10	1.33	2.35	0.18
U.S.	Post-intervention	2.94	2.89	1.73	4.21	0.77
U.S.	Full period	2.26	2.12	1.33	4.21	0.54
Control group	Pre-intervention	1.88	1.93	0.66	2.70	0.37
Control group	Post-intervention	2.76	2.24	0.54	9.07	1.73
Control group	Full period	2.07	1.96	0.54	9.07	0.95
Long-term Expected Inflation (%)						
U.S.	Pre-intervention	2.24	2.23	2.08	2.43	0.07
U.S.	Post-intervention	2.25	2.26	2.09	2.37	0.06
U.S.	Full period	2.24	2.24	2.08	2.43	0.07
Control group	Pre-intervention	2.07	2.03	1.60	2.89	0.17
Control group	Post-intervention	2.07	2.05	1.91	2.33	0.09
Control group	Full period	2.07	2.03	1.60	2.89	0.16
Unemployment Rate (%)						
U.S.	Pre-intervention	5.68	5.00	3.50	14.70	2.04
U.S.	Post-intervention	4.99	4.50	3.50	8.40	1.48
U.S.	Full period	5.53	5.00	3.50	14.70	1.95
Control group	Pre-intervention	5.74	5.80	1.80	14.10	1.69
Control group	Post-intervention	5.06	4.60	2.20	10.20	2.12
Control group	Full period	5.59	5.55	1.80	14.10	1.81

Note: Table continues on the next page.

Table S1. Descriptive Statistics (Cont.)						
Variable/Unit	Period	Mean	Median	Min.	Max.	Std. Dev.
Industrial Production (percent change)						
U.S.	Pre-intervention	0.33	1.60	−18.95	4.34	3.78
U.S.	Post-intervention	2.25	3.06	−6.94	15.00	5.42
U.S.	Full period	0.75	1.86	−18.95	15.00	4.25
Control group	Pre-intervention	1.24	1.68	−41.68	11.34	4.58
Control group	Post-intervention	3.11	1.99	−12.07	42.64	7.59
Control group	Full period	1.65	1.70	−41.68	42.64	5.44
Government Surplus (% of GDP)						
U.S.	Pre-intervention	−6.74	−5.80	−25.70	−0.80	3.83
U.S.	Post-intervention	−8.71	−5.90	−20.30	−2.50	5.61
U.S.	Full period	−7.17	−5.85	−25.70	−0.80	4.34
Control group	Pre-intervention	−1.86	−1.27	−25.70	1.86	3.42
Control group	Post-intervention	−4.02	−3.59	−14.00	2.50	3.88
Control group	Full period	−2.33	−1.70	−25.70	2.50	3.63
M3 (percent change)						
U.S.	Pre-intervention	6.45	5.99	3.12	20.88	2.97
U.S.	Post-intervention	12.12	12.00	−0.89	23.79	7.46
U.S.	Full period	7.70	6.24	−0.89	23.79	4.93
Control group	Pre-intervention	6.33	6.51	−3.37	15.23	3.01
Control group	Post-intervention	9.14	8.15	1.76	21.27	3.95
Control group	Full period	6.94	6.81	−3.37	21.27	3.44
Overnight interest rate (%)						
U.S.	Pre-intervention	0.71	0.17	0.05	2.44	0.82
U.S.	Post-intervention	0.81	0.09	0.05	4.33	1.30
U.S.	Full period	0.73	0.15	0.05	4.33	0.94
Control group	Pre-intervention	0.75	0.50	−5.52	3.53	0.99
Control group	Post-intervention	1.08	0.23	−1.11	7.00	1.77
Control group	Full period	0.82	0.46	−5.52	7.00	1.21

Note: Table continues on the next page.

Table S1. Descriptive Statistics (Cont.)						
Variable	Period	Mean	Median	Min.	Max.	Std. Dev.
Global Supply Chain Pressures Index (GSCPI)						
	Pre-intervention	−0.03	−0.23	−0.94	3.19	0.76
	Post-intervention	2.26	2.36	0.11	4.33	1.13
	Full period	0.47	0.06	−0.94	4.33	1.28
Kilian Index						
	Pre-intervention	−47.19	−46.85	−127.93	19.05	33.23
	Post-intervention	23.51	42.85	−38.88	79.41	40.47
	Full period	−31.66	−35.36	−127.93	79.41	45.53
Global Energy Price Inflation (%)						
	Pre-intervention	−10.01	−4.84	−93.72	49.86	29.59
	Post-intervention	45.84	65.23	−29.35	98.89	40.92
	Full period	2.26	0.15	−93.72	98.89	39.73
Global Food Price Inflation (%)						
	Pre-intervention	−2.73	−1.34	−25.85	14.33	7.63
	Post-intervention	16.47	19.05	0.37	34.55	10.02
	Full period	1.49	−0.04	−25.85	34.55	11.42

Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations.

Note: The control group consists of Canada, the Czech Republic, Israel, New Zealand, Sweden, and the U.K. The pre-intervention period spans from 2012:M1 to 2020:M7, while the post-intervention period extends from 2020:M8 to 2022:M12.

Table S2. The Effect of FAIT on PCE Inflation and Medium-Run Expected Inflation						
	PCE Inflation Rate		**Medium-Term Expected Inflation** Annual, Current Year		**Medium-Term Expected Inflation** Annual, Next Year	
	[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**
ATT	1.059	0.964	0.992	0.905	0.288	0.252
p-value	0.000	0.000	0.000	0.000	0.065	0.001
Bias correction	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Residualization	*No*	*Yes*	*No*	*Yes*	*No*	*Yes*
Weights						
Canada	0.336	0.440	0.452	0.510	0.813	0.851
Czech Republic	−0.004	0.125	−0.013	0.070	0.016	0.004
Israel	0.126	0.059	−0.013	−0.003	−0.051	0.042
New Zealand	0.157	0.119	−0.002	0.066	−0.001	−0.010
Sweden	0.076	−0.065	0.128	−0.046	−0.016	−0.012
United Kingdom	0.309	0.323	0.448	0.403	0.240	0.125
Diagnostics & Robustness						
RMSPE	0.208	0.327	0.193	0.250	0.119	0.103
MAPE	0.172	0.261	0.154	0.199	0.096	0.081
Estimated bias	−0.027	0.025	−0.025	0.003	0.074	−0.007
Improv. vs. unif. weights	30.98	25.05	48.90	28.38	57.02	48.14
No anticipation (p-val)	0.056	0.199	0.258	0.666	0.519	0.669
In-time placebo (p-val)	0.048	0.000	0.992	0.178	0.530	0.943

Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations. Note: Columns [3]–[4] represent the expected annual inflation rate for the current year, while columns [5]–[6] correspond to the expected annual inflation rate for the following year. The p-value for the average treatment on the treated (ATT) unit corresponds to the joint null hypothesis that all effects are zero over the post-intervention period. RMSPE and MAPE denote the pre-intervention root mean squared prediction error and pre-intervention mean absolute prediction error, respectively. When the Augmented SCM is used, the estimated bias from a potentially weak pre-intervention fit is reported. The auxiliary predictors used are the government surplus as a share of GDP and percent changes in M3. The row labeled 'Improv. vs. unif. weights' shows the percentage improvement relative to using uniform weights instead of Synthetic Control weights. The no anticipation test (p-val) provides the p-value for the null hypothesis that the outcome gap was zero one month before FAIT adoption. The in-time placebo test (p-val) tests the null hypothesis that the ATT was zero during the 24-month period between the placebo treatment date (2018:M8) and the actual treatment date (2020:M8). Residualization of outcome variables is conducted using country effects and key macroeconomic factors, including the Global Supply Chain Pressures Index (GSCPI), the Kilian Index, global energy price inflation (ENERGY), international food price inflation (FOOD), government surplus as a share of GDP (GSGDP), M3 growth (M3P), industrial production growth (IPP), and the overnight rate (ONR).

Table S3. The Effect of FAIT—Extended Post-Intervention Period (2020:M8-2022:M12)								
	Headline CPI Inflation				**Core CPI Inflation**			
	[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**	**[8]**
ATT	0.618	0.651	0.637	0.621	0.872	0.843	0.539	0.423
p-value	0.000	0.000	0.002	0.012	0.066	0.037	0.632	0.896
Bias correction	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Residualization	*No*	*No*	*Yes*	*Yes*	*No*	*No*	*Yes*	*Yes*
Dropping Canada	*No*	*No*	*No*	*Yes*	*No*	*No*	*No*	*Yes*
Weights								
Canada	0.438	0.438	0.569	...	0.541	0.575	0.703	...
Czech Republic	0.061	0.047	0.377	0.703	0.000	−0.016	−0.038	0.035
Israel	0.000	−0.006	−0.026	0.187	0.000	−0.040	0.002	0.295
New Zealand	0.080	0.065	−0.003	−0.020	0.000	0.026	0.031	0.024
Sweden	0.039	0.041	−0.198	−0.101	0.000	−0.056	−0.156	−0.126
United Kingdom	0.381	0.414	0.281	0.231	0.459	0.511	0.458	0.772
Diagnostics & Robustness								
RMSPE	0.282	0.283	0.516	0.828	0.360	0.302	0.592	0.892
MAPE	0.226	0.226	0.405	0.649	0.313	0.253	0.459	0.734
Estimated bias	...	−0.009	−0.024	−0.071	...	0.009	−0.064	0.074
Improv. vs. unif. weights	40.89	40.78	55.69	35.47	55.44	62.62	48.07	28.91
No anticipation (p-val)	0.356	0.336	0.654	0.762	0.310	0.197	0.382	0.741
In-time placebo (p-val)	0.982	0.979	0.001	0.044	0.824	0.571	0.000	0.033

Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations. Note: The p-value for the average treatment on the treated (ATT) unit corresponds to the joint null hypothesis that all effects are zero over the post-intervention period. RMSPE and MAPE represent the pre-intervention root mean squared prediction error and pre-intervention mean absolute prediction error, respectively. When the Augmented SCM is used, the estimated bias from a potentially weak pre-intervention fit is reported. The auxiliary predictors used are the government surplus as a share of GDP and percent changes in M3. The row labeled 'Improv. vs. unif. weights' shows the percentage improvement relative to using uniform weights instead of Synthetic Control weights. The no anticipation test (p-val) provides the p-value for the null hypothesis that the outcome gap was zero one month before FAIT adoption. The in-time placebo test (p-val) tests the null hypothesis that the ATT was zero during the 24-month period between the placebo treatment date (2018:M8) and the actual treatment date (2020:M8). Residualization of outcome variables is conducted using country effects and key macroeconomic factors, including the Global Supply Chain Pressures Index (GSCPI), the Kilian Index, global energy price inflation (ENERGY), international food price inflation (FOOD), government surplus as a share of GDP (GSGDP), M3 growth (M3P), industrial production growth (IPP), and the overnight rate (ONR). Specifications [4] and [8] exclude Canada from the donor pool as part of a sensitivity analysis.

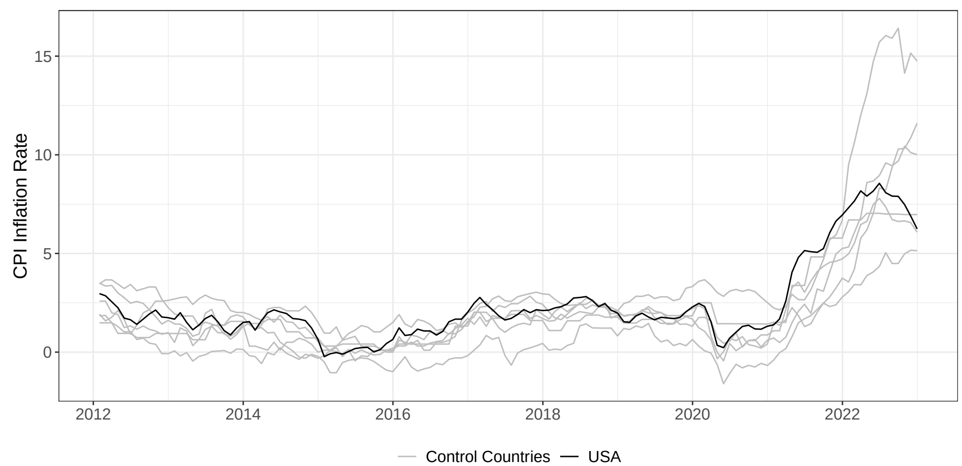
Table S4. The Effect of FAIT—Extended Post-Intervention Period (2020:M8-2022:M12)								
	Inflation Expectations Short Term				**Inflation Expectations Long Term**			
	[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**	**[8]**
Average ATT	0.648	0.594	0.359	0.389	0.117	0.110	0.017	0.017
P-value joint null	0.000	0.000	0.000	0.000	0.341	0.560	0.496	0.547
Bias correction	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Residualization	No	No	Yes	Yes	No	No	Yes	Yes
Dropping Canada	No	No	No	Yes	No	No	No	Yes
Weights								
Canada	0.585	0.586	0.579	...	0.000	-0.034	0.722	...
Czech Republic	0.000	-0.004	0.354	0.732	0.042	0.07	0.111	0.637
Israel	0.000	-0.017	0.045	0.25	...	...	...	...
New Zealand	0.073	0.05	-0.007	-0.009	0.000	-0.031	0.077	0.271
Sweden	0.061	0.07	-0.192	-0.108	0.311	0.33	-0.007	0.093
United Kingdom	0.282	0.315	0.222	0.135	0.647	0.665	0.096	-0.001
Diagnostics & Robustness								
RMSPE	0.237	0.235	0.426	0.615	0.129	0.128	0.049	0.058
MAPE	0.184	0.184	0.337	0.499	0.107	0.106	0.04	0.043
Estimated Bias	...	0.003	0.007	-0.006	...	0.009	0.000	0.001
Improv. vs. unif. weights	36.976	37.342	56.313	42.801	26.24	27.011	20.797	20.204
No anticipation (p-val)	0.704	0.746	0.371	0.442	0.768	0.898	0.942	0.667
In-time placebo (p-val)	1.000	1.000	0.005	0.009	1.000	1.000	0.001	0.377

Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations. Note: Short-term expected inflation refers to the projected four-quarter change, one quarter ahead, while long-term expected inflation corresponds to the expected rate 6-10 years into the future. The p-value for the average treatment on the treated (ATT) unit corresponds to the joint null hypothesis that all effects are zero over the post-intervention period. RMSPE and MAPE represent the pre-intervention root mean squared prediction error and pre-intervention mean absolute prediction error, respectively. When the Augmented SCM is used, the estimated bias from a potentially weak pre-intervention fit is reported. The auxiliary predictors used are the government surplus as a share of GDP and percent changes in M3. The row labeled 'Improv. vs. unif. weights' shows the percentage improvement relative to using uniform weights instead of Synthetic Control weights. The no anticipation test (p-val) provides the p-value for the null hypothesis that the outcome gap was zero one month before FAIT adoption. The in-time placebo test (p-val) tests the null hypothesis that the ATT was zero during the 24-month period between the placebo treatment date (2018:M8) and the actual treatment date (2020:M8). Residualization of outcome variables is conducted using country effects and key macroeconomic factors, including the Global Supply Chain Pressures Index (GSCPI), the Kilian Index, global energy price inflation (ENERGY), international food price inflation (FOOD), government surplus as a share of GDP (GSGDP), M3 growth (M3P), industrial production growth (IPP), and the overnight rate (ONR). Specifications [4] and [8] exclude Canada from the donor pool as part of a sensitivity analysis.

Table S5. The Effect of FAIT using Spillover-Adjusted Synthetic Control Method								
	Headline CPI Inflation		**Core CPI Inflation**		**Inflation Exp. (Short Term)**		**Inflation Exp. (Long Term)**	
	[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**	**[7]**	**[8]**
ATT	1.336	1.852	0.280	0.600	1.354	1.900	0.008	0.026
Residualization	*No*	*Yes*	*No*	*Yes*	*No*	*Yes*	*No*	*Yes*
Weights								
Canada	0.420	0.434	0.458	0.422	0.626	0.536	0.472	0.623
Czech Republic	0.073	0.144	0.000	0.000	0.020	0.038	0.307	0.170
Israel	0.000	0.006	0.128	0.140	0.000	0.078	...	...
New Zealand	0.104	0.014	0.189	0.147	0.052	0.049	0.221	0.207
Sweden	0.044	0.000	0.020	0.000	0.013	0.000	0.000	0.000
United Kingdom	0.359	0.401	0.206	0.291	0.289	0.300	0.001	0.000
Diagnostics & Robustness								
RMSPE	0.393	0.481	0.348	0.393	0.403	0.429	0.059	0.072
MAPE	0.314	0.385	0.271	0.314	0.319	0.340	0.042	0.053

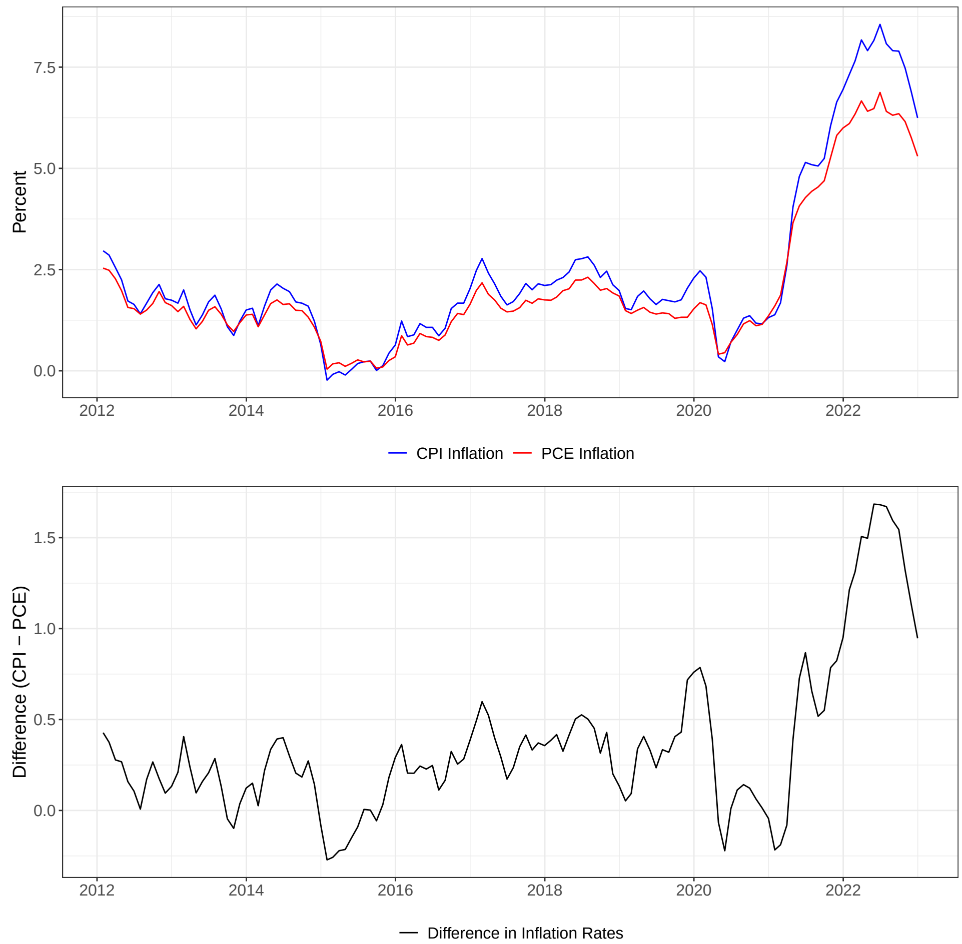
Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations.
Note: We use the spillover-adjusted SCM method proposed by Cao and Dowd (2019), which explicitly accounts for potential spillover effects. The authors do not report p-values for the full-period ATT. However, confidence intervals are provided for the dynamic treatment effect (see Figure S5). Short-term expected inflation (columns [5]-[6]) refers to the projected four-quarter change, one quarter ahead, while long-term expected inflation (columns [7]-[8]) corresponds to the expected rate 6-10 years into the future. RMSPE and MAPE denote the pre-intervention root mean squared prediction error and pre-intervention mean absolute prediction error, respectively. Israel is excluded from specifications [7]-[8] due to the unavailability of long-term expected inflation data.

Figure S1. CPI Inflation Rates for the U.S. and the Control Units



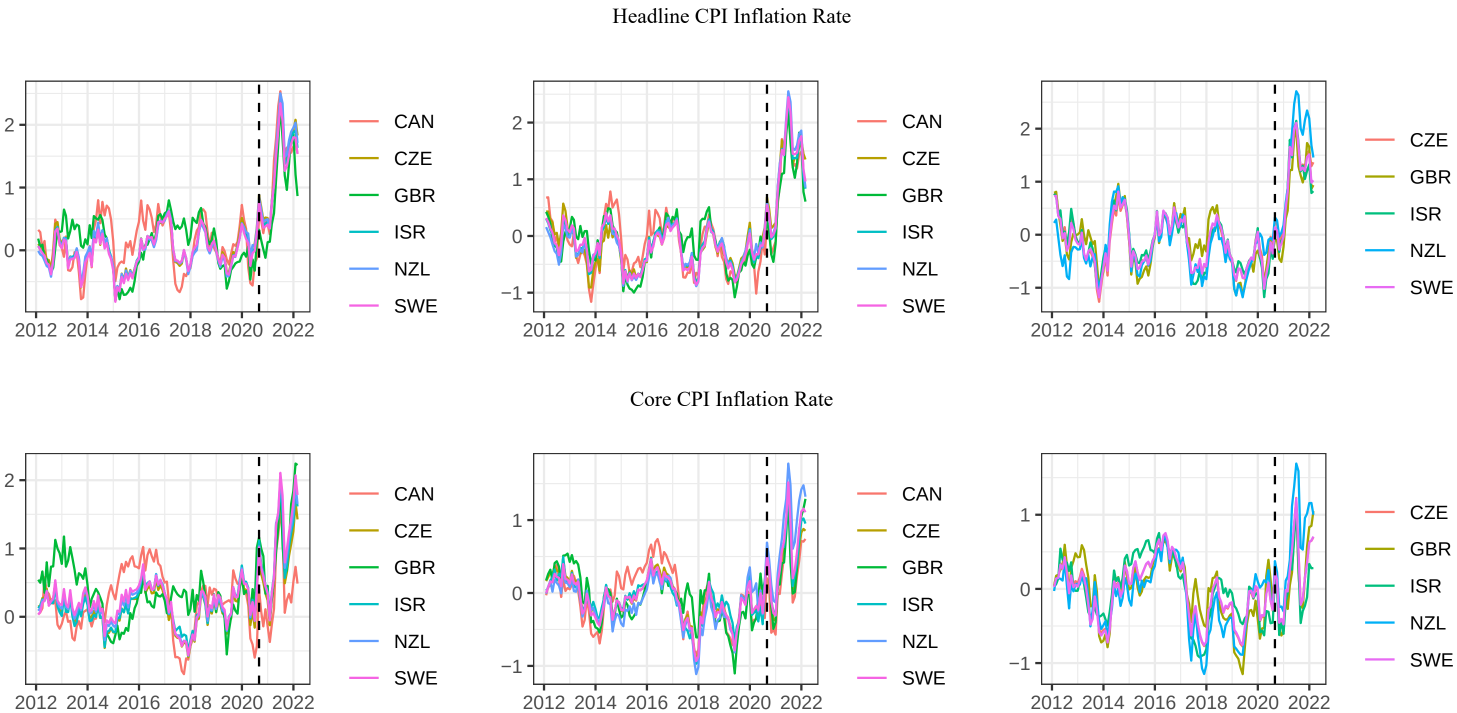
Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations.
Note: The CPI inflation rate is calculated as the year-over-year percent change (12-month percent change in the logged index). The plot displays the CPI inflation rate for the U.S. (dark line) alongside the corresponding CPI inflation rates for the control units (gray lines).

Figure S2. CPI and PCE Inflation Rates for the U.S. and Their Differential



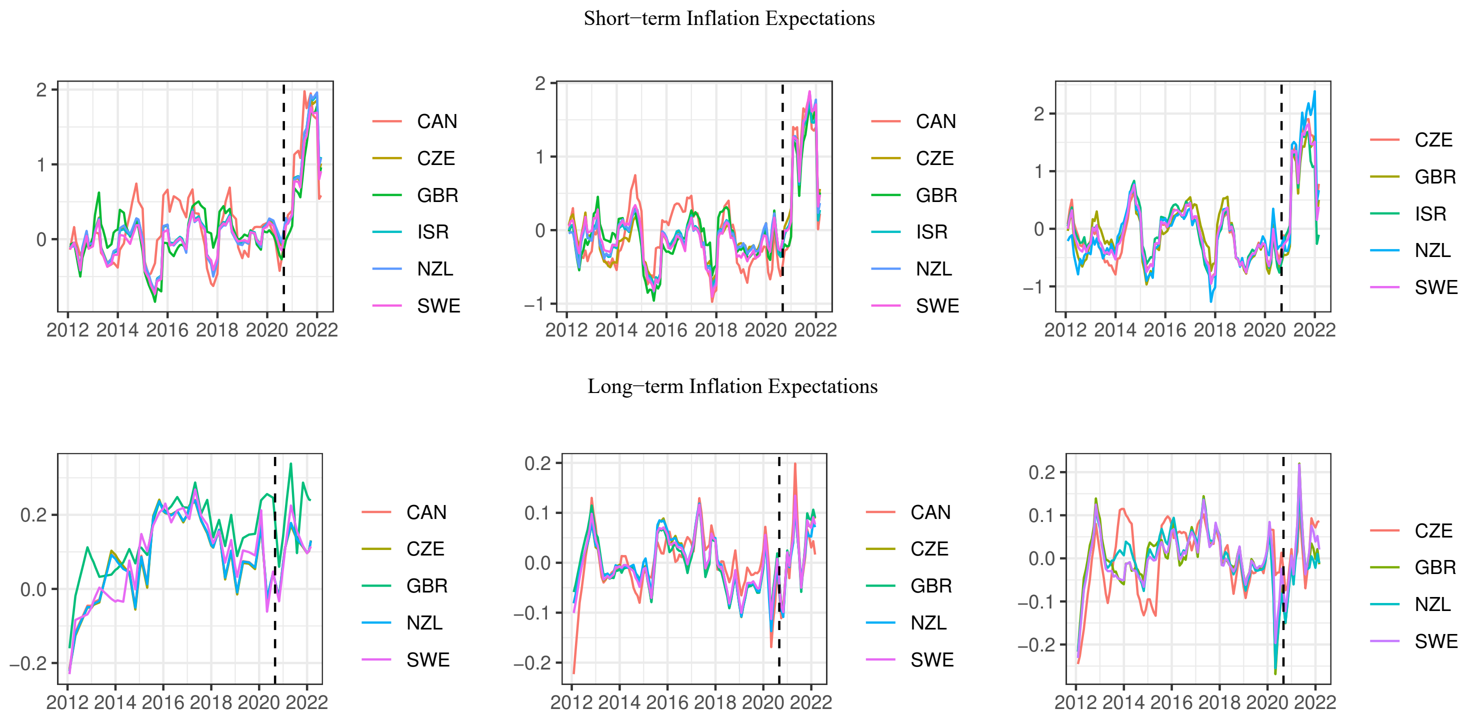
Sources: U.S. Bureau of Labor Statistics; U.S. Bureau of Economic Analysis; authors' calculations.
Note: The top panel plots the year-over-year inflation rates for the CPI and PCE series. The bottom panel displays the differential series, calculated as the difference between the year-over-year inflation rates (12-month percent change in the logged index) of each series.

Figure S3. Leave-One-Out Test: Headline and Core CPI Inflation Rates



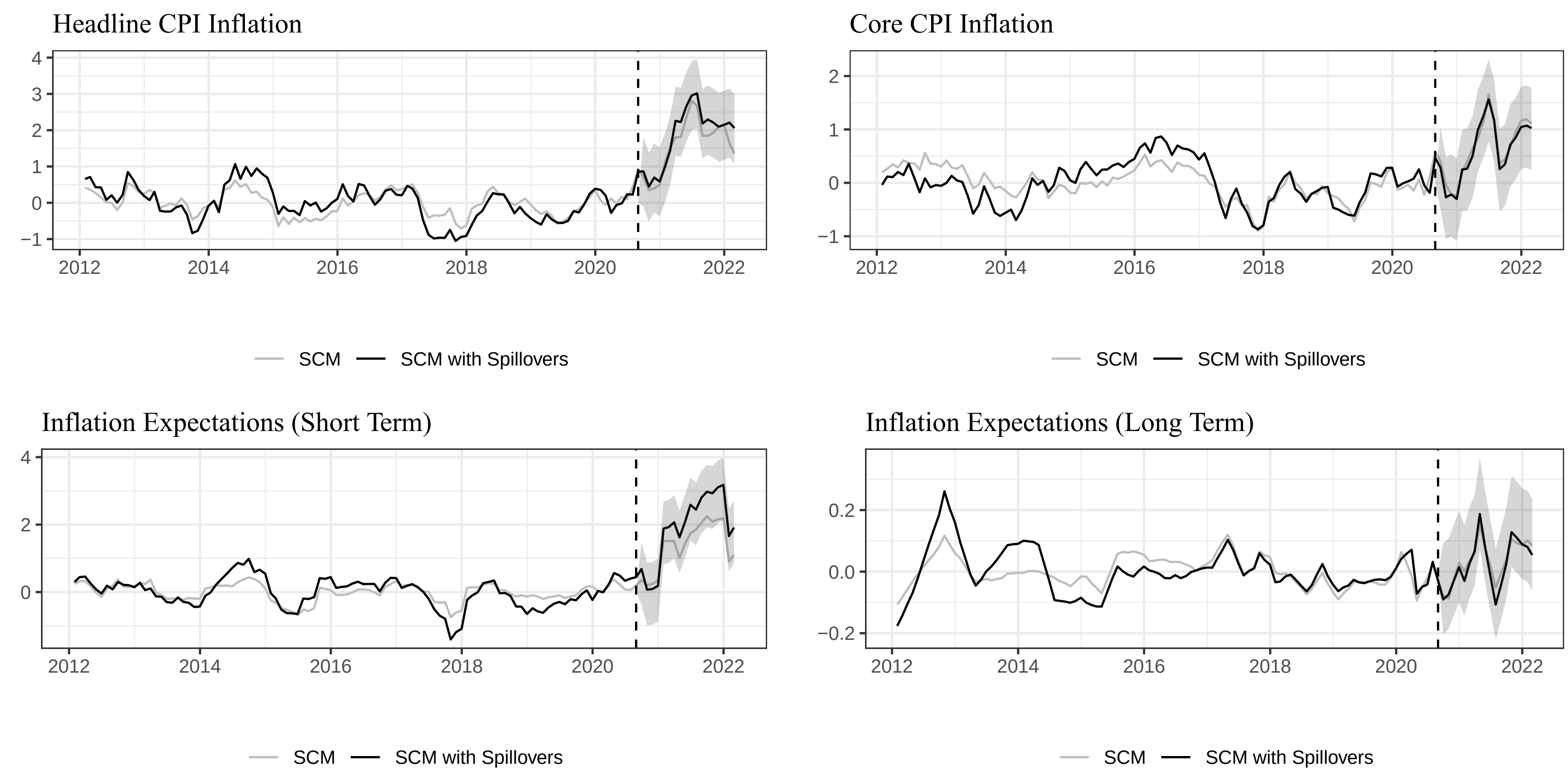
Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations.
Note: The figures display the gaps between actual values and synthetic estimates of the outcome variable when removing a single donor country. The intervention date (August 2020) is marked by a dashed vertical line in each plot. The left panels show the augmented SCM estimates (columns [2] and [6] in Table 1), the center panels present the augmented SCM estimates with residualization (columns [3] and [7] in Table 1), and the right panels display the augmented SCM estimates with residualization, excluding Canada from the donor pool (columns [4] and [8] in Table 1). Residualization of inflation rates is conducted using country effects and key macroeconomic factors, including the Global Supply Chain Pressures Index (GSCPI), the Kilian Index, global energy price inflation (ENERGY), international food price inflation (FOOD), government surplus as a share of GDP (GSGDP), M3 growth (M3P), industrial production growth (IPP), and the overnight rate (ONR).

Figure S4. Leave-One-Out Test: Short-Term and Long-Term Expected Inflation Rates



Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations.
Note: The figures display the gaps between actual values and synthetic estimates of the outcome variable when removing a single donor country. The intervention date (August 2020) is marked by a dashed vertical line in each plot. The left panels show the augmented SCM estimates (columns [2] and [6] in Table 2), the center panels present the augmented SCM estimates with residualization (columns [3] and [7] in Table 2), and the right panels display the augmented SCM estimates with residualization, excluding Canada from the donor pool (columns [4] and [8] in Table 2). Residualization of inflation rates is conducted using country effects and key macroeconomic factors, including the Global Supply Chain Pressures Index (GSCPI), the Kilian Index, global energy price inflation (ENERGY), international food price inflation (FOOD), government surplus as a share of GDP (GSGDP), M3 growth (M3P), industrial production growth (IPP), and the overnight rate (ONR).

Figure S5. Outcome Gaps using the Synthetic Control Method with and without Spillover Effects



Source: Dallas Fed's Database of Global Economic Indicators (Grossman, Mack, and Martínez-García (2014)); authors' calculations.

Note: The figures depict the outcome gaps for the canonical synthetic control (gray line, labeled SCM) and the spillover-adjusted synthetic control (dark line, labeled SCM with Spillovers), along with its 95% confidence interval. The intervention date (August 2020) is marked by a dashed vertical line in each plot. The upper left panel presents the DTE for headline CPI inflation, while the upper right panel displays the DTE for core CPI inflation. The lower left panel illustrates the DTE for short-run inflation expectations, and the lower right panel shows that for long-run inflation expectations. All panels use residualized outcome variables, assuming potential spillover effects on Canada. Residualization of inflation rates is conducted using country effects and key macroeconomic factors, including the Global Supply Chain Pressures Index (GSCPI), the Kilian Index, global energy price inflation (ENERGY), international food price inflation (FOOD), government surplus as a share of GDP (GSGDP), M3 growth (M3P), industrial production growth (IPP), and the overnight rate (ONR).