

What Caused Iceland's Post-COVID Inflation?

A Small Open Economy Test of the Bernanke–Blanchard Framework

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Abstract

We apply the semi-structural framework of Bernanke and Blanchard (2023) to Iceland's post-COVID inflation episode, extending the cross-country evidence in Bernanke and Blanchard (2024), Menz (2024) for Germany, and Aldama et al. (2025) for France to a small open economy with four institutionally distinct features: an independent floating exchange rate with a 43-percent import-to-GDP ratio, centralised national wage agreements, a user-cost CPI housing methodology in force until June 2024, and CPI-indexed mortgage debt accounting for roughly 60 percent of household mortgage stocks. We estimate the wage and price equations by OLS with Newey–West HAC standard errors on the strict pre-COVID 2003Q1–2019Q4 window using the actual Statistics Iceland VIN00910 quarterly Labour Force Survey series, and evaluate the model on 2020Q1–2025Q4 as out-of-sample-with-known-interventions. Three findings emerge. First, the unemployment-gap slope on the wage Phillips curve under HP detrending is 0.62 (HAC SE 0.20, $p = 0.002$); under Hamilton (2018) detrending it is 0.37 (HAC SE 0.24, $p = 0.12$), and the slope is concentrated in the 2003–2009 sub-sample. Second, the OLS ISK/EUR pass-through coefficient is 0.024 (HAC SE 0.0058, $p < 0.001$), which we interpret as a conditional association rather than a structural elasticity: available instruments are weak (first-stage HAC $F = 0.48$; Anderson–Rubin 90 percent confidence interval unbounded). Third, the model attributes 2020–2025 inflation primarily to inherited persistence and the 2022 commodity shock, with smaller contributions from ISK depreciation and a real-wage-catch-up term that we interpret through the Iacoviello (2005) cash-flow channel as a reduced-form summary that includes an indexed-mortgage amplification component, not separately identified within the regression.

JEL classification: E31, E52, F41, C32.

Keywords: small open economy inflation; exchange-rate pass-through; user-cost CPI; centralised wage bargaining; indexed mortgages; Bernanke–Blanchard framework; Iceland.

Highlights

- First Bernanke–Blanchard application to a small open economy with widespread CPI-indexed household debt.
- Pre-COVID wage Phillips slope on the actual Statistics Iceland VIN00910 quarterly LFS series is 0.62 under HP and 0.37 under Hamilton (2018) detrending.
- OLS ISK/EUR pass-through coefficient of 0.024 (HAC SE 0.006); IV identification fails (first-stage $F = 0.48$), reported transparently.
- Out-of-sample-with-known-interventions decomposition attributes 2020–2025 inflation primarily to persistence and the 2022 commodity shock.
- Indexed-mortgage amplification interpreted via Iacoviello (2005) cash-flow channel; not separately identified within the regression but consistent with §7 HICP-counterfactual evidence.

1. Introduction

Iceland began 2020 with an inflation problem it had been carrying for two decades. Expectations had exceeded the Central Bank of Iceland's 2.5 percent target almost continuously since 2001. CPI peaked at 10.2 percent in February 2023 (Statistics Iceland VIS01000) and was still 5.2 percent in January 2026, thirty-five months after the peak and well into one of the most aggressive tightening cycles in the OECD. This paper asks what structural features explain Iceland's inflation persistence, and what the answer reveals about inflation dynamics in small open economies with indexed financial contracts.

The analytical framework is the semi-structural model of Bernanke and Blanchard (2023, hereafter BB), which specifies a four-equation dynamic system for nominal wages, consumer prices, short-run inflation expectations, and a long-run trend. Bernanke and Blanchard (2024) extend this framework to ten additional advanced economies; Iceland is not in the sample. Two recent country applications in the literature, Menz (2024) for Germany and Aldama et al. (2025) for France, provide direct cross-country comparators against which the Iceland evidence can be benchmarked. We add a third: Bounajm et al. (2024) at the Bank of Canada.

Iceland is a useful laboratory precisely because it deviates from the BB-(2024) sample on four institutional dimensions. First, imports account for roughly 43 percent of GDP and the ISK floats independently, so the exchange rate is a primary inflation channel rather than a secondary one. Second, the CPI housing component (≈ 30 percent weight) was measured under a user-cost methodology until June 2024, which embeds house-price dynamics in CPI directly and without the 12–18-month lag of rental-equivalence approaches. Third, wage bargaining is centralised: discrete national agreements between SA and the union confederations create step-function wage dynamics that a standard quarterly Phillips curve cannot accommodate. Fourth, CPI-indexed mortgages account for roughly 60 percent of outstanding household mortgage debt (the share fluctuated between 41 and 77 percent over 2019–2024), so every percentage point of inflation mechanically inflates indexed principal and feeds back through household balance sheets. Each motivates an extension to the BB specification.

The paper makes four structural extensions. The price equation separates ISK/EUR depreciation from world commodity prices. The Housing Price Index is added as a candidate regressor. National wage-agreement dummies absorb the discrete bargaining-round dynamics. A real-wage-catch-up term captures a cash-flow / collateral channel of the Iacoviello (2005) family that, in Iceland's institutional configuration, includes an indexed-mortgage amplification component. We note that this last channel is interpreted, not separately identified within any single regression.

Three findings emerge. (i) On the actual Statistics Iceland VIN00910 quarterly LFS series, distinct from the annual-replicated quarterly proxy used in earlier work, the pre-COVID 2003Q1–2019Q4 wage

Phillips-curve unemployment-gap slope under two-sided HP detrending is 0.62 (HAC SE 0.20, $p = 0.002$). Under Hamilton (2018) regression-based detrending the slope is 0.37 (HAC SE 0.24, $p = 0.12$), and Appendix Table A5 shows the slope is concentrated in 2003Q1–2009Q4 (0.71, $p = 0.001$) and statistically insignificant on 2010Q1–2019Q4 alone (0.30, $p = 0.40$). We treat the HP-derived 0.62 as the upper end of a defensible range and Hamilton's 0.37 as the lower end. (ii) The OLS ISK/EUR pass-through coefficient is 0.024 (HAC SE 0.0058, $p < 0.001$), interpreted as a conditional association, not a structural elasticity: candidate instruments, lagged FX changes and lagged year-on-year oil-price growth, are weak (first-stage joint HAC $F = 0.48$; Anderson–Rubin 90 percent confidence interval unbounded; Sargan rejected). (iii) Over 2020Q1–2025Q4, characterised here as out-of-sample-with-known-interventions, since the Ukraine 2022Q1–Q3 commodity-shock dummy and the 2022Q1 / 2024Q1 wage-agreement dummies enter the simulation as known interventions, the model attributes inflation primarily to inherited price persistence and the 2022 commodity shock, with smaller contributions from ISK depreciation and the real-wage-catch-up term.

Three contributions follow. First, the paper is, to our knowledge, the first BB-style application to a small open economy with widespread CPI-indexed household debt at scale. The cross-country comparison with Germany (Menz, 2024) and France (Aldama et al., 2025) isolates the role of an independent currency and an independent monetary stance; the comparison with Canada (Bounajm et al., 2024) provides a third small-open-economy point of reference. Second, we document a methodological footnote that matters for the Iceland literature: the difference between annual-replicated and actual quarterly LFS unemployment data is the difference between a near-zero and a 0.62 wage Phillips slope. Third, we frame the indexed-mortgage interpretation through the Iacoviello (2005) cash-flow channel rather than the Auclert (2019) redistribution channel, which contractually does not apply to indexed debt, a point we believe is novel in the BB application literature.

The remainder of the paper is organised as follows. Section 2 sketches the institutional features that motivate the four extensions. Section 3 specifies the structural model. Section 4 describes the data. Section 5 reports the wage and price equations and the identification strategy. Section 6 presents the historical decomposition and the out-of-sample-with-known-interventions evaluation. Section 7 reports two monetary-policy counterfactuals and a structural HICP-methodology counterfactual. Section 8 compares Iceland with Germany, France, and Canada. Section 9 discusses the indexed-mortgage interpretation and engages Storm's (2024) markup-residual critique. Section 10 concludes.

2. Institutional background

2.1 Inflation targeting and chronic de-anchoring

Iceland adopted inflation targeting in March 2001 with a 2.5 percent target, following the small-open-economy framework of Svensson (2000). From 2001 to 2019 inflation exceeded the target in roughly 70 percent of months. Household survey expectations and bond-market breakevens both remained persistently above 2.5 percent. Herbertsson and Mishkin (2006) diagnosed the structural causes: a volatile exchange rate, a small and open product market with fast pass-through, and CPI-indexed financial contracts that embed inflation expectations into balance sheets. Pre-COVID de-anchoring is not background context for this paper; it sets the initial conditions that determine how far a supply shock propagates.

2.2 User-cost CPI housing

Iceland's CPI housing component, weighted at approximately 30 percent of the overall index, was measured under a user-cost methodology until June 2024. Owner-occupied housing costs are estimated from house prices, interest rates, and depreciation, so house-price inflation enters CPI directly and without the lag that characterises rental equivalence. Statistics Iceland switched to rental equivalence in June 2024 following IMF recommendations (IMF, 2025a, 2025b). Every other OECD economy in the BB(2024) sample uses rental equivalence or imputed rent. This creates a series break that requires explicit treatment; we use the user-cost-consistent series throughout to ensure cross-period comparability with the pre-COVID estimation window.

2.3 Centralised wage bargaining

National wage agreements between SA (the Confederation of Icelandic Employers) and the main union confederations cover most of the labour market. Agreements run two to four years and are renegotiated at discrete intervals. Within the strict pre-COVID 2003Q1–2019Q4 estimation window the in-sample agreement quarters are 2008Q1 (the SA–ASÍ private-sector settlement of February 2008), 2009Q2 (Stöðugleikasáttmálinn, the Stability Pact, signed 25 June 2009), 2011Q2 (the General Wage Agreement), 2015Q4 (the SALEK framework agreement), and 2019Q2 (Lífskjarasamningurinn, the "Standard-of-Living Agreement," signed 3 April 2019). The 2022Q1 and 2024Q1 agreements fall in the evaluation window. The 2022 settlement, concluded with CPI already above 6 percent and rising, delivered nominal wage increases of roughly 10 percent in the first year, far above what a pre-COVID-calibrated Phillips curve would predict.

2.4 CPI-indexed mortgages (*verðtrygging*)

CPI-indexed mortgage contracts (*verðtrygging*) account for 60–65 percent of outstanding household mortgage debt. When CPI rises, indexed principal rises proportionally, increasing both the stock of debt

and the monthly payment. The mechanism creates a channel from the price level to household budget constraints that the standard wage-price framework ignores.

It is important to be precise about which model captures this channel. Models with collateral and cash-flow channels (Iacoviello, 2005) show how shocks to the price level transmit to household demand through debt-service burdens and collateral values. The canonical Auclert (2019) redistribution channel, by contrast, operates through *unindexed* nominal debt: inflation transfers real wealth from creditors to debtors, and high-MPC borrowers raise spending. CPI indexation contractually switches off that redistribution; *verðtrygging* inverts rather than mirrors the canonical HANK redistribution mechanism. The empirically relevant channel is the Iacoviello cash-flow tightening on indexed-mortgage borrowers: when CPI rises, indexed principal rises proportionally, inflating debt service and squeezing disposable income. This generates an additional round of wage pressure at the next collective bargaining round that nominal-debt HANK models do not capture.

Indexed mortgages are a regulated regime, not a transitional one. The Consumer Mortgages Act 118/2014 and BSI Rule 1277/2014 restrict indexed equal-payment new mortgages and impose stricter DSTI limits, with successive tightening in 2017 and 2022; the IMF (2025b) recommends further phase-out, but indexed mortgages remain a live and dominant share of the outstanding household stock.

3. Empirical framework

3.1 The Bernanke–Blanchard system

BB specify a four-equation dynamic system estimated equation-by-equation: a wage Phillips curve, a price Phillips curve, an adaptive-expectations equation linking short-run expectations to the long-run anchor and recent outcomes, and a trend-inflation equation. We estimate the wage and price equations directly and treat the adaptive weight λ as a separately identified parameter, recovered from a four-quarter trailing-CPI proxy. The system is semi-structural: theoretically grounded in the open-economy New Keynesian tradition of Galí and Monacelli (2005) and Blanchard and Galí (2007), but estimated with generous dynamics and without DSGE cross-equation restrictions.

Baseline wage equation

$$gw_t = \alpha_0 + \alpha_1 \cdot gw_{t-1} + \alpha_2 \cdot gw_{t-2} + \alpha_3 \cdot catchup_t + \alpha_4 \cdot u_gap_t + \alpha_5 \cdot \pi^e_{t-1} + \alpha_6 \cdot d_agree_t + \alpha_7 \cdot d_agree_{t-1} + \varepsilon_t,$$

where gw_t is nominal wage growth, π^e_{t-1} is the four-quarter trailing-CPI expectations proxy, u_gap_t is the negative cyclical residual of the STL-seasonally-adjusted Statistics Iceland VIN00910 quarterly LFS unemployment series from its HP trend (positive values denote labour-market tightness),

catchup_t is the deviation of the real wage index from its HP trend, and d_agree_t equals one in quarters in which a national wage agreement takes legal effect. The Blanchard–Galí (2007) real-wage rigidity parameter is $\gamma = 1 - \alpha_3$; high γ means workers defend their real wage position aggressively after a price shock.

Baseline price equation

$$gp_t = \beta_0 + \beta_1 \cdot gp_{t-1} + \beta_2 \cdot gp_{t-2} + \beta_3 \cdot gw_{t-1} + \beta_4 \cdot oil_ISK_t + \beta_5 \cdot d_iskeur_ann_t + \beta_6 \cdot d_ukraine_t + \varepsilon_t,$$

where gp_t is consumer price inflation, oil_ISK_t is the year-on-year change in the Brent crude price in ISK, d_iskeur_ann_t is the quarterly log change in ISK/EUR scaled to annualised percentage points ($\times 400$), and d_ukraine_t is a 2022Q1–2022Q3 commodity-shock dummy that is identically zero in the strict pre-COVID estimation window and enters the out-of-sample simulation as a calibrated intervention with coefficient 1.43, drawn from the full-sample 2003Q1–2023Q4 specification (Appendix Table A6).

3.2 Four extensions for Iceland

Extension 1: Exchange-rate pass-through and dominant-currency robustness

The original BB supply-shock composite bundles world commodity prices and import prices. For Iceland, these operate through distinct channels with different instruments and policy implications. The price equation in §3.1 separates them: oil_ISK_t isolates the ISK-denominated commodity channel, d_iskeur_ann_t the bilateral FX channel. The bilateral ISK/EUR specification implicitly assumes the euro is the dominant invoicing currency for Iceland's imports. Under the dominant-currency paradigm of Gopinath (2015, 2020) and Boz et al. (2022), commodity imports, notably oil and food, are USD-invoiced and the relevant rate is ISK/USD rather than ISK/EUR. Forbes et al. (2018) further document that pass-through is state-dependent across exchange-rate regimes. We re-estimate the price equation with ISK/USD substituted for ISK/EUR (Appendix Table A7) and obtain a quantitatively similar coefficient. Pétursson (2010) reports CPI-on-FX long-run elasticities for Iceland in the 0.3–0.4 range; converting our quarterly $\beta_5 = 0.024$ through the AR(2) net 0.84 implies a long-run elasticity ≈ 0.6 , above Pétursson's earlier-sample estimates and at the upper end of Campa and Goldberg's (2005) cross-country range. The OLS estimate should therefore be read as a conditional association on this sample, not as a structural elasticity that supersedes the existing Iceland-specific pass-through literature.

Extension 2: Housing-cost channel

The Housing Price Index enters the price equation as a candidate regressor capturing the user-cost shelter component of CPI. In estimation, HPI does not enter significantly once lagged CPI is controlled for ($\beta = -0.001$, $p = 0.899$, R^2 gain ≈ 0); house-price dynamics are already embedded in the CPI persistence

term. The housing channel therefore operates through the near-unit-root lag structure rather than as a distinct contemporaneous driver. We retain the channel in the discussion because the §7 HICP counterfactual quantifies it directly.

Extension 3: Wage-agreement dummies

Standard quarterly OLS treats agreement-quarter wage spikes as large residuals and attributes them to the lagged regressors, inflating tightness and expectations coefficients. A binary dummy at the quarter the agreement first takes legal effect, with one own-lag, absorbs the discrete adjustment and identifies tightness and expectations from within-agreement wage drift, the theoretically meaningful variation.

Extension 4: Indexed-mortgage amplification (interpreted through the catch-up term)

In an economy where roughly 60 percent of household mortgage debt is CPI-indexed, every percentage point of CPI surprise mechanically inflates real debt service for indexed-mortgage holders, generating an additional source of wage demand on top of standard real-wage catch-up. The empirical implementation does not introduce a separate Δmort regressor in the wage equation, because the available aggregate data do not allow the indexed-mortgage component to be separated from the broader real-wage-catch-up term within an OLS specification. We interpret the estimated catch-up coefficient α_3 as a reduced-form summary that includes both effects, and identify the indexed-mortgage component through (i) the back-of-envelope calculation in §9.1, (ii) the cross-country contrast with Canada and Germany (which have comparable openness but no widespread debt indexation), and (iii) the HICP counterfactual (Scenario D, §7). No prior BB country application includes this channel, which is structurally impossible to identify outside an economy with inflation-indexed household liabilities at scale.

4. Data

Monthly series are converted to quarterly averages. Structural parameters are estimated on the strict pre-COVID 2003Q1–2019Q4 window (the 2003Q1 start is set by the launch of the Statistics Iceland quarterly LFS series). The wage equation has 66 valid observations after lags; the price equation has 64. The 2020Q1–2025Q4 period is treated as an out-of-sample-with-known-interventions evaluation: the Ukraine 2022Q1–Q3 commodity-shock dummy and the 2022Q1 / 2024Q1 wage-agreement dummies enter the simulation as known interventions rather than as estimated coefficients, with the Ukraine coefficient calibrated from the full-sample 2003Q1–2023Q4 specification (Appendix Table A6) at 1.43. The expectations proxy is the four-quarter trailing CPI mean, which is the most defensible historical proxy available across our window in the absence of a continuous CBI Market Expectations Survey series; the proxy and the survey track each other closely (correlation > 0.95) over the 2012Q1+ window where both are available. The real wage catch-up term is the deviation of the real wage index from its Hodrick–Prescott

trend ($\lambda = 1600$), with the filter applied only over 2003Q1–2019Q4 to avoid the end-of-sample bias documented by Hamilton (2018); we report Hamilton-filter robustness explicitly in §5.2 and Appendix Table A4. Comparison coefficients for Germany and France are taken from Menz (2024) and Aldama et al. (2025) respectively; for Canada from Bounajm et al. (2024). Descriptive statistics are reported in Table 1; derived-variable summaries in Appendix Table A2.

Table 1. Summary statistics, Iceland quarterly panel, 2003Q1–2024Q4.

Variable	N	Mean	Std Dev	Min	Max
CPI inflation (YoY, %)	88	4.85	3.40	1.07	17.13
Nominal wage growth (YoY, %)	88	7.05	2.13	2.23	13.07
Unemployment rate, LFS quarterly (%)	84	4.69	1.32	2.45	8.25
ISK/EUR exchange rate	88	130.78	31.30	73.88	183.75
ISK/EUR depreciation (annualised, %)	88	2.11	21.97	−31.43	105.57
CBI policy rate (%)	88	6.59	3.78	0.75	17.86
Brent crude oil price (USD)	84	72.13	26.05	26.11	122.22
Oil price growth in ISK (YoY, %)	80	7.98	34.02	−75.74	90.15
Unemployment gap (pp, HP $\lambda=1600$)	84	−0.16	1.10	−2.69	2.11
Real wage catch-up (%)	88	3.96	14.29	−17.25	36.79

Sources: Statistics Iceland (CPI VIS01000, residential property index VIS01106, wage index LAU04000, quarterly LFS VIN00910); Central Bank of Iceland (policy rate, ISK/EUR); ECB SDW; FRED. Estimation sample 2003Q1–2019Q4; Table 1 reports descriptive coverage.

5. Estimation results

5.1 Identification strategy

The primary specification uses OLS with Newey–West HAC standard errors at four lags (Newey and West, 1994) on the strict pre-COVID 2003Q1–2019Q4 window. We attempted to identify the FX pass-through coefficient via instrumental variables using lagged ISK/EUR depreciation (1, 2, 3 quarters) and lagged year-on-year oil-price growth as instruments (Campa and Goldberg, 2005), but the proposed instruments are weak: the joint first-stage HAC F-statistic on the excluded instruments is 0.48 (well below the Staiger and Stock, 1997 threshold of 10), 2SLS produces a small and insignificant FX coefficient (0.009, HAC SE 0.024, $p = 0.71$), IV-GMM produces an intermediate point estimate of 0.028 (SE 0.019, $p = 0.13$), and the Sargan–Hansen overidentification test rejects in 2SLS ($J p < 0.001$) and is borderline in GMM ($J p = 0.074$). The Wu–Hausman test rejects exogeneity at the 5 percent level ($p = 0.038$), confirming that endogeneity is empirically present, but the available instruments are not strong enough to identify the FX coefficient cleanly. The Anderson–Rubin weak-IV-robust 90 percent confidence interval is unbounded,

a standard signature of weak identification. Under Lee, McCrary, Moreira, and Porter (2022) and Andrews, Stock, and Sun (2019), the conventional 2SLS t-thresholds are inadmissible at this F: critical values for valid 5-percent inference far exceed 1.96. We therefore retain OLS with HAC standard errors as the baseline and explicitly interpret β_5 as a conditional association rather than as a causal pass-through magnitude. Stronger instruments, narrative-identified ECB monetary surprises, capital-flow shocks, or the 2008–2017 Iceland capital-controls quasi-experiment, are left to future work.

Two further inference notes. First, the HAC bandwidth $L = 4$ corresponds to the Newey–West (1994) rule of thumb $4 \cdot (N/100)^{(2/9)} \approx 3.6$ for $N = 64$, rounded up; Appendix Table A7 reports β_5 across $L = 1, 2, 4, 6, 8, 12$ with no qualitative change. Second, across the wage- and price-equation coefficient vectors we report Romano–Wolf (2005) step-down adjusted p-values for the joint inference exercise in the replication output; the headline u_gap and β_5 findings remain significant under the step-down adjustment, while the borderline catch-up and lagged-agreement coefficients are sensitive to the multiplicity correction.

Regarding persistence, the price equation's net AR coefficient of 0.83 is high. ADF tests (Appendix Table A3) and KPSS triangulation ($p > 0.10$) corroborate an $I(0)$ interpretation at conventional short lag lengths but are sensitive to lag selection. Long-run homogeneity is rejected for both equations (sums of lag coefficients of 0.66 for wages and 0.83 for prices); the system is maintained in unrestricted form, consistent with near-unit-root but stationary dynamics. Sub-sample estimation for 2010–2019 (the lower-inflation decade) yields lag sums of 0.78 (wages) and 0.91 (prices), closer to unity, consistent with the view that the homogeneity restriction binds more tightly as expectations stabilise.

5.2 Wage equation

Table 2. Wage Phillips curve estimates, Iceland, pre-COVID sample 2003Q1–2019Q4 (N = 66).

Variable	Coef.	HAC SE	t-stat	p-value
Constant	2.285	0.435	5.25	,
Wage growth (t-1)	1.099***	0.087	12.61	0.000
Wage growth (t-2)	-0.435***	0.094	-4.65	0.000
Real-wage catch-up (α_3)	-0.024	0.021	-1.12	0.266
Unemployment gap (α_4)	0.622***	0.200	3.11	0.002
Short-run expectations (t-1)	-0.001	0.024	-0.04	0.965
Wage-agreement dummy	0.070	0.295	0.24	0.813
Wage-agreement dummy (t-1)	-0.827**	0.363	-2.28	0.023

N = 66 R² = 0.795 Adj. R² = 0.770 DW = 2.13 HAC(4)

*Newey–West HAC standard errors (4 lags). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Quarterly specification; multiply wage growth by 4 to annualise. The Blanchard–Galí (2007) real-wage-rigidity parameter is $\gamma = 1 - \alpha_3$ where α_3 is the catch-up coefficient. The expectations proxy is the four-quarter trailing CPI mean (see §4).*

Wage growth is highly persistent: $gw_lag1 = 1.099$ (HAC SE 0.087, $p < 0.001$), $gw_lag2 = -0.435$ (HAC SE 0.094, $p < 0.001$), giving a net wage persistence of 0.66. The expectations-proxy coefficient is essentially zero (-0.001 , $p = 0.965$), consistent with Icelandic centralised wage-setting in which forward-looking expectations enter at discrete agreement dates rather than at quarterly frequency. The unemployment-gap coefficient on the actual VIN00910 quarterly LFS series is 0.622 (HAC SE 0.200, $p = 0.002$): a one-percentage-point reduction in the unemployment gap is associated with approximately 0.62 pp of additional quarterly wage growth. The real-wage-catch-up coefficient is -0.024 (HAC SE 0.021, $p = 0.266$) on the strict pre-COVID sample; on the broader 2003Q1–2023Q4 sample which incorporates the post-COVID inflation episode (Appendix Table A6), the coefficient turns positive ($+0.022$, HAC SE 0.011, $p = 0.049$). The lagged wage-agreement dummy is -0.827 (HAC SE 0.363, $p = 0.023$), consistent with moderation of wage growth in the quarter following an agreement.

HP-filter sensitivity

The unemployment-gap coefficient of 0.622 is estimated using a two-sided HP filter ($\lambda = 1600$) applied to the strict pre-COVID 2003Q1–2019Q4 series. Because Iceland was in late-cycle tightness in 2017–2019, two-sided HP truncated at 2019Q4 pushes the trend down toward the data and inflates the late-sample positive gap. Re-estimating the wage equation with the Hamilton (2018) regression-based filter ($h = 8$, $p = 4$) in place of HP (Appendix Table A4) yields a slope of 0.37 (HAC SE 0.24, $p = 0.12$): qualitatively in the same direction but materially smaller and not statistically significant at conventional levels. Sub-sample stability (Appendix Table A5) shows the slope is concentrated in 2003Q1–2009Q4 (0.71, $p = 0.001$) and is not statistically significant on 2010Q1–2019Q4 alone (0.30, $p = 0.40$). The headline 0.62 should therefore be read as the upper end of a defensible range, with Hamilton 0.37 the lower bound and the post-2009 sub-sample slope statistically indistinguishable from zero.

5.3 Price equation

Table 3. Price Phillips curve estimates, Iceland, pre-COVID sample 2003Q1–2019Q4 (N = 64).

Variable	Coef.	HAC SE	t-stat	p-value
Constant	0.331	0.361	0.92	0.358
CPI inflation (t-1)	1.148***	0.105	10.91	0.000
CPI inflation (t-2)	-0.315***	0.095	-3.32	0.001
Wage growth (t-1)	0.041	0.035	1.17	0.244
Oil price growth in ISK (YoY)	0.0125***	0.0047	2.66	0.008
ISK/EUR depreciation (annualised, β_s)	0.0242***	0.0058	4.16	0.000
Ukraine 2022Q1–Q3 dummy	not estimated in pre-COVID	,	,	,

N = 64 R² = 0.926 Adj. R² = 0.920 DW = 2.68 HAC(4)

*Newey–West HAC (4 lags). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Sample: 2003Q1–2019Q4. The d_iskeur_ann regressor is the quarterly log change in ISK/EUR scaled to annualised percentage points ($\times 400$). The Ukraine 2022Q1–Q3 dummy is identically zero in this sample and enters the simulation in §6 as a known intervention with calibrated coefficient 1.43 from Appendix Table A6. The Durbin–Watson of 2.68 is consistent with no first-order serial correlation; the four-lag Breusch–Godfrey LM test on the full-sample residuals ($LM = 26.83$, $p < 0.001$; Appendix Table A7) indicates residual autocorrelation at higher lags that HAC handles. Bandwidth sensitivity reported in Appendix Table A7 across $L = 1–12$; $\beta_5 = 0.024$ retains $t > 3$ across all bandwidths.*

CPI inflation is highly persistent: $cpi_lag1 = 1.148$ ($p < 0.001$), $cpi_lag2 = -0.315$ ($p = 0.001$), giving a net AR of 0.83. Lagged wage growth carries a small and insignificant coefficient (0.041, $p = 0.244$). The oil-in-ISK coefficient is 0.0125 ($p = 0.008$). The ISK/EUR depreciation coefficient is 0.0242 (HAC SE 0.0058, $p < 0.001$): a one-percentage-point increase in the annualised ISK depreciation rate is associated with a 0.024-pp increase in quarterly CPI inflation, controlling for lagged CPI, lagged wages, and oil. We interpret this as a conditional association, not as a causal pass-through magnitude, for the identification reasons set out in §5.1. Cumulated through the AR(2) structure, the 15-percent ISK depreciation between 2019Q4 and 2020Q2 implies roughly 3.7 pp of cumulative CPI over the following six quarters, broadly consistent with observed 2020–2021 inflation acceleration.

5.4 Expectations and de-anchoring

Using a four-quarter trailing CPI mean as the proxy and 2.5 percent as the implicit anchor, the auxiliary adaptive weight is $\lambda = 0.93$ (HAC SE 0.04, $N = 87$, $R^2 = 0.96$). The same value obtains on the pre-COVID sub-sample. We note that this number is largely mechanical: regressing a backward-looking proxy on its own recent realisations recovers the proxy's autoregressive structure rather than measuring forward-looking de-anchoring against the CBI's target. Read $\lambda = 0.93$ documents that the backward-looking component of one-year-ahead inflation expectations is large under any plausible mechanical proxy. It is not, on its own, evidence of de-anchoring. Direct evidence comes from the chronic above-target outturns since 2001 and from the cross-country contrast in §8 with Germany and France, whose published BB-style applications report past-inflation coefficient sums in the 0.29–0.39 range under more direct survey-based measurement.

6. Historical decomposition and out-of-sample evaluation

6.1 The 2020–2025 inflation surge

Using pre-COVID structural estimates, the model is simulated forward from 2020Q1 using actual shock realisations. The 2020Q1–2025Q4 evaluation window is characterised here as out-of-sample-with-known-interventions: the Ukraine 2022Q1–Q3 commodity-shock dummy and the 2022Q1 / 2024Q1 wage-agreement dummies enter the simulation as known interventions (Ukraine calibrated at 1.43 from the full-sample 2003Q1–2023Q4 specification; Appendix Table A6). A strict pseudo-out-of-sample run with all

dummies set to zero and no Ukraine pre-calibration yields a materially worse fit, as expected, since the 2022 commodity shock is then unmodelled.

Five components are identified from the price equation: import price shocks (oil), ISK depreciation, wage pass-through, CPI persistence (which captures the housing amplification through the near-unit-root lag structure), and expectations, plus a residual. Three phases are distinguishable. In 2020 inflation persistence dominated, as pre-pandemic price dynamics carried forward into the recovery; the 15-percent ISK depreciation between 2019Q4 and 2020Q2 fed into import prices with a one-quarter lag. From 2022Q1 the Ukraine 2022Q1–Q3 commodity-shock dummy contributes 1.43 pp per quarter for three quarters, coinciding with the steepest part of the inflation surge. From 2022Q4 onwards the commodity contribution faded but inflation persistence (lagged CPI coefficient 1.148, net AR 0.83) kept inflation elevated. The RMSE across the full 2020–2025 evaluation window is 0.45 percentage points (quarterly), decomposing into 0.36 pp over the acute phase (2020Q1–2022Q4) and 0.52 pp over the disinflation phase (2023Q1–2025Q4), where service-sector stickiness generates a systematic positive residual.

6.2 Residuals and the disinflation phase

The model underestimates persistence of service-sector inflation from 2023Q2 onward. Two interpretations compete. If firms expanded profit margins during the inflationary episode, as Storm (2024) argues for the US, the residual captures distributional dynamics. Alternatively, structural changes in labour-market matching following the COVID disruption and the subsequent surge in immigration may have shifted the effective Phillips curve slope in ways the pre-COVID estimates do not capture. Regressing the price-equation residuals on a markup proxy (CPI growth minus wage growth, in differences) yields a HAC-robust t-statistic of 2.17 ($p = 0.030$, $R^2 = 0.13$) on the broader 2003Q1–2023Q4 residual sample. Restricting to the 2021Q3–2022Q4 acute window (only six quarters available) the relationship strengthens ($t \approx 5.0$, $p < 0.01$); restricting to the broader 2020Q1–2023Q4 post-COVID window yields a null result ($t = 0.05$). Full regression details are in Appendix B. Section 9.2 returns to this evidence.

7. Counterfactual analysis

We report three counterfactuals. Scenario B assumes the CBI had begun hiking rates two quarters earlier, in 2020Q4 rather than 2021Q2. Scenario C assumes the CBI held the policy rate at its peak of 9.25 percent for two additional quarters before beginning to cut. Scenario D is structural rather than monetary: it asks what Iceland's inflation path would have looked like under the Harmonised Index of Consumer Prices (HICP) rental-equivalence methodology rather than user-cost throughout the episode.

Under Scenario B (Figure 4), earlier hiking reduces the simulated CPI peak by 0.19 pp (median of 1,000-draw bootstrap; baseline simulated peak ≈ 10.09 percent quarterly, Scenario B peak ≈ 9.90 percent).

The 90 percent block-bootstrap CI $[-0.03, +0.38]$ pp on the peak reduction includes zero. The directional reading, persistence dominates timing, is robust across draws; the magnitude is not. Under Scenario C, holding rates higher for longer yields meaningfully faster disinflation in 2024–2025, with simulated CPI reaching ≈ 3.2 percent by 2025Q2 versus the actual 4.1 percent.

Scenario D (Figure 6) deducts 1 pp per quarter from measured CPI over the 2021Q4–2023Q1 user-cost-driven house-price boom window, a magnitude qualitatively consistent with IMF (2025b), which finds that the user-cost imputed-rent component contributed an average 1.8 pp to headline CPI between 2001 and mid-2024. Re-estimating the price equation on the adjusted series produces structural changes consistent with the housing-methodology story: the Ukraine dummy coefficient falls from 1.43 to 1.05 (part of the measured shock was housing methodology, not commodity prices), and the wage pass-through coefficient falls from 0.054 to 0.039. The CPI persistence net AR coefficient is essentially unchanged (0.86 vs 0.84 baseline). Under Scenario D the simulated CPI path peaks at approximately 9.0 percent, about 1.1 pp below the actual quarterly peak of 10.0 percent (the monthly peak was 10.2 percent in February 2023). The 90-percent block-bootstrap interval on the peak reduction is wide and does not robustly exclude zero. By 2025Q4, simulated and actual CPI converge as the user-cost amplification window closes.

The mechanism is the wage-amplification channel: at the time of the 2022 bargaining round, CPI stood at 6.2 percent under user-cost but would have stood at 5.2 percent under HICP, a difference of exactly 1 pp. Lower measured inflation at the bargaining table reduces both the explicit CPI-indexation in wage formulas and the adaptive expectations component, moderating the settlement and the subsequent indexed-mortgage amplification. This is the channel through which measurement methodology and financial structure interact: user-cost CPI, by overstating the immediate price level during house-price booms, amplifies indexed debt burdens and wage demands simultaneously.

8. Cross-country comparison

Table 4 compares key structural parameters across Iceland, Germany, and France, with Canada referenced narratively because the BoC framework uses a composite supply-shock term and does not isolate a comparable bilateral FX coefficient. Specifications follow the original BB system; comparator coefficients are taken from Menz (2024) for Germany, Aldama et al. (2025) for France, and Bounajm et al. (2024) for Canada.

Table 4. Cross-country structural parameter comparison.

Parameter	Iceland	Germany	France
FX pass-through (β_5)	0.024***	n/a (€)	n/a (€)
Blanchard–Galí rigidity ($\gamma = 1 - \alpha_3$)	≈ 1 (α_3 n.s.)	0.48	0.52

Past-inflation coefficient sum (proxy/survey)	0.93	0.22	0.29
Housing channel (β_{hpi})	-0.001 (n.s.)	0.120	0.090
Wage pass-through to prices (β_3)	0.04	0.22	0.23
CPI peak (% YoY, monthly)	10.2 (Feb 2023)	10.4 (Oct 2022)	6.3 (Feb 2023)
CPI end-2025 (% YoY)	≈ 4.5	≈ 2.3	≈ 1.5

*All parameters estimated on pre-COVID samples (Iceland 2003Q1–2019Q4; comparators 2000–2019). *** $p < 0.01$. Iceland coefficients from Tables 2 and 3. Germany from Menz (2024); France from Aldama et al. (2025); housing-channel coefficients are the corresponding HPI / shelter-cost terms reported in those papers. Past-inflation coefficient sums are reported in source-paper specifications. Germany and France have no independent exchange rate as euro-area members; FX pass-through is by construction n/a.*

Three structural features emerge. First, FX pass-through in Iceland ($\beta_5 = 0.024$) is significantly different from zero, while Germany and France have no independent bilateral exchange-rate channel by construction. Second, price persistence is highest in Iceland (net AR 0.83) versus Germany (0.75) and France (0.68); service-sector CPI in Iceland averaged 6.2 percent annual in 2023–2024, well above tradeable-goods inflation (2.1 percent), consistent with sheltered-sector stickiness contributing to the persistence gap. Third, the past-inflation coefficient sum is markedly higher for Iceland (0.93, with the §5.4 caveat) than for Germany (0.22–0.39) or France (0.29). Even after the proxy-versus-survey caveat, the gap is large enough to indicate that a substantially larger share of any inflation shock propagates forward into future expectations in Iceland than in either comparator. The structural absence of an independent exchange rate is one, but not the only, reason Iceland's peak inflation exceeded France's by roughly 4 pp despite identical external supply shocks; Germany's peak of 10.4 percent in October 2022 nominally exceeded Iceland's, but reflects exceptional Russian-gas exposure rather than exchange-rate dynamics.

9. Discussion

9.1 Was there a wage–price spiral?

Lorenzoni and Werning (2023) show that cost-push shocks can generate persistent inflation through wage–price interaction without expectations de-anchoring, provided real-wage rigidity is high enough. The Iceland evidence is partially consistent with this mechanism but with a structural twist. There was no acute spiral in the standard sense: the decomposition attributes the majority of the initial surge to supply-side factors. Wages did not lead prices; they followed.

The institutional configuration of Iceland, widespread CPI indexation of household mortgage debt, provides a plausible additional amplification channel that is consistent with the broad pattern of the data. Rising prices mechanically inflate indexed mortgage principals; indexed-debt holders enter the next bargaining round with both eroded real wages and inflated nominal debt service; the resulting wage

settlement helps sustain inflation persistence. The mechanism operates on the 1–2-year bargaining cycle rather than as a quarterly price–wage feedback and is not captured by Lorenzoni and Werning (2023). The real-wage-catch-up coefficient is small and insignificant on the strict pre-COVID sample (Table 2: -0.024 , $p = 0.266$) but turns positive and marginally significant on the broader 2003Q1–2023Q4 sample that incorporates the post-COVID episode (Appendix Table A6: $+0.022$, $p = 0.049$). The mechanism is present in direction in the data that include the post-COVID indexed-mortgage amplification window, but is not separately identified from a standard real-wage-catch-up channel with the available aggregate data.

A back-of-envelope arithmetic grounds the magnitude. At end-2021, approximately 60 percent of Icelandic household mortgage debt was CPI-indexed, with an average outstanding balance of roughly ISK 23 million per mortgaged household (CBI, Financial Stability Report, Spring 2022, Table A.15). The 2022 CPI surge of approximately 7 pp mechanically added ISK 1.6 million to the nominal principal of the average indexed mortgage. For a household at a 4-percent indexed rate over a 25-year remaining term, this raised monthly payment by approximately ISK 8,500, equivalent to roughly 2.5 percent of the median gross monthly wage of ISK 340,000 in 2022. Workers entering the 2022 bargaining round therefore faced an effective purchasing-power reduction combining standard real-wage erosion and an additional mortgage-burden component. This arithmetic is consistent with the 10-percent first-year nominal wage settlement at the 2022 round, which significantly exceeded the 6-percent CPI prevailing at negotiation. The mechanism cannot be cleanly identified from aggregate quarterly data alone, and this calculation should be treated as motivating rather than definitive. Future work using household-level registry data on mortgage types and outstanding balances could sharpen the channel.

9.2 Engagement with the Storm (2024) critique

Storm (2024) argues that the BB framework rationalises a demand-suppressing monetary response to inflation driven by corporate profit markups rather than labour costs, and that the model's residuals expose distributional dynamics the standard framework hides. The Iceland residuals from 2021Q3 through 2022Q4 are positive and non-trivial; the markup-proxy regression (Appendix B) yields $t = 5.0$ on this six-quarter window. The Storm critique deserves engagement and identifies a margin that the BB decomposition under-attributes. Three Iceland-specific structural facts make the sellers'-inflation channel a priori plausible here: the grocery duopoly between Hagar and Festi, with a combined retail food-market share of approximately 60 percent; the 2008–2013 shipping cartel between Eimskip and Samskip, for which the Icelandic Competition Authority levied an ISK 4.2-billion fine on Samskip in 2023; and the Síminn / Vodafone-Sýn duopoly in telecoms. We treat the BB decomposition and the Storm channel as complementary rather than mutually exclusive; firm-level or sector-level markup data, not available in the public aggregate panel, would be required to identify the share of the acute-phase residual that reflects markup expansion as

opposed to housing-splice and COVID-quarter measurement effects. The post-COVID 2020Q1–2023Q4 null on the same regression ($t = 0.05$) implies the markup channel is concentrated in the acute phase rather than persistent.

9.3 Policy implications

Three implications follow. First, the FX channel implies monetary policy in Iceland operates partly through the exchange rate; a credible tightening cycle that appreciates the ISK reduces inflation directly through import prices, not only through the conventional demand channel. Second, the indexed-mortgage system creates a structural asymmetry in monetary transmission: rate hikes increase debt service on non-indexed loans but transmit CPI inflation directly into indexed principals, partially offsetting demand restraint; a faster transition to nominal contracts would restore fuller transmission. Third, the June 2024 HICP methodology switch is one half of a two-part structural reform; if wage negotiators continue using the legacy user-cost CPI as their reference for real-wage catch-up at the 2025/2026 round, the statistical improvement in measured inflation will not fully translate into lower nominal settlements. Beyond Iceland, economies with significant CPI-indexed household debt (Chile, Israel, several emerging markets) face analogous indexed-debt amplification risks that standard BB-style decompositions will under-attribute unless modelled explicitly.

10. Conclusion

Iceland's post-COVID inflation episode is not well-explained by the original Bernanke–Blanchard framework without four institutional extensions: an ISK/EUR pass-through term, a housing-cost channel operating through the user-cost CPI methodology, wage-agreement dummies for centralised bargaining dynamics, and a real-wage-catch-up term that, in Iceland's institutional configuration, includes an indexed-mortgage amplification component interpreted through the Iacoviello (2005) cash-flow channel rather than the Auclert (2019) redistribution channel that contractually does not apply to indexed debt.

On the strict pre-COVID 2003Q1–2019Q4 estimation sample, two of the four extensions deliver significant in-sample coefficients: FX pass-through (Extension 1: $\beta_5 = 0.024$, $p < 0.001$) and the lagged wage-agreement dummy (Extension 3: -0.827 , $p = 0.023$). The housing channel (Extension 2) operates through CPI persistence rather than as a standalone regressor. The indexed-mortgage amplification (Extension 4) is interpreted through the catch-up term and supporting institutional, counterfactual, and full-sample evidence rather than identified as a separate coefficient.

The historical decomposition attributes the surge primarily to ISK depreciation amplifying import-price shocks, persistent housing-cost inflation, and chronically de-anchored expectations that predate COVID by two decades. Labour-market tightness contributed but was secondary; a standard wage-price spiral did not

materialise in the acute phase. Cross-country comparison with Germany (Menz, 2024) and France (Aldama et al., 2025), both euro-area members facing identical external shocks but benefiting from ECB credibility and no independent exchange rate, isolates the Iceland-specific structural features cleanly.

Two natural experiments are now under way. The June 2024 adoption of HICP methodology replaces user-cost housing measurement with rental equivalence; Scenario D estimates that under HICP throughout the episode, peak inflation would have been approximately 1.1 pp lower (90-percent bootstrap interval wide and including zero) and disinflation approximately four quarters faster. The ongoing reform of the indexed-mortgage regime under Act 118/2014 will, when complete, reduce the sensitivity of household balance sheets to the price index. The combination of CPI-methodology reform and indexed-mortgage reform represents a natural experiment whose full effects will be measurable by the late 2020s.

We close by noting three honest empirical limitations. First, the FX pass-through coefficient is not separately identified by the available instruments and should be read as a conditional association (§5.1). Second, the headline 0.62 wage Phillips slope is fragile to HP-filter endpoint choice; under Hamilton (2018) detrending it falls to 0.37 (§5.2 and Appendix Table A4). Third, the indexed-mortgage amplification channel is supported by the institutional configuration, the back-of-envelope arithmetic, and the cross-window sign behaviour of the catch-up coefficient, but is not separately identified within the wage regression. These limitations point to the natural follow-up agenda: hand-collection of the CBI Market Expectations Survey from 2012Q1 for a survey-based λ ; the 2008–2017 capital-controls episode as a quasi-experiment for the FX channel; and household-level registry data on mortgage types and indexation status to identify the indexed-mortgage amplification component directly.

Declarations

The author declares no competing interests. AI language tools (Anthropic Claude) were used for prose editing and code generation; all data acquisition decisions, model specification choices, identification assumptions, empirical results, and conclusions are the author's own. No funding was received in support of this research.

Data Availability Statement

All raw input series are public and were retrieved from primary sources between 26 and 29 April 2026. Statistics Iceland series via the PXWeb API (CPI VIS01000, residential property index VIS01106, wage index LAU04000, quarterly LFS unemployment VIN00910). ISK/EUR monthly reference rates from the European Central Bank Statistical Data Warehouse (series EXR M.ISK.EUR.SP00.A). Brent crude oil (POILBREUSD), FAO food price index (PFOODINDEXM), and US one-year inflation expectations (EXPINF1YR) from FRED at the Federal Reserve Bank of St. Louis. Central Bank of Iceland REIBOR /

policy-rate series obtained from sedlabanki.is/hagtolor (no public API). The `download_raw_data.py` script in the replication archive re-fetches every series from its primary source. Derived analytical variables (real wage catch-up, unemployment gap, oil-in-ISK series, expectations proxy) are constructed in `build_panel.py`. Single-command reproduction of Tables 2 and 3: `python replicate.py --sample pre_covid`; full-sample comparator (Appendix Table A6): `python replicate.py --sample full`. The replication archive is licensed CC-BY-4.0 for the code and inherits each provider's license for the underlying data.

Appendix A. Sensitivity and supporting tables

Table A1. Expectations anchoring, sensitivity analysis.

(1) Baseline: 4-quarter trailing CPI mean vs 2.5% anchor, $\lambda = 0.93^{****}$ (HAC SE 0.04, $N = 87$, $R^2 = 0.96$). (2) Raw lagged CPI (mechanical), $\lambda = 1.00^{****}$ ($R^2 = 1.00$). (3) 4-quarter trailing mean vs rolling 5-yr CPI anchor, $\lambda = 0.55^{****}$ ($R^2 = 0.78$). (4) Pre-COVID baseline 2003Q1–2019Q4, $\lambda = 0.93^{****}$ ($N = 71$, $R^2 = 0.96$). All specifications: OLS with Newey–West HAC at 4 lags, no constant. (2) is a mechanical sanity check, not anchoring evidence. The CBI Market Expectations Survey (2012Q1+) tracks specification (1) at correlation > 0.95 over the available window.

Table A2. Descriptive statistics of derived analytical variables, pre-COVID 2003Q1–2019Q4.

Wage growth gw (YoY, %), $N = 68$, mean 7.18, SD 2.49, min 1.21, max 12.55. CPI inflation (YoY, %), $N = 68$, mean 4.62, SD 2.85, min 0.78, max 14.21. Unemployment gap u_gap (pp, HP $\lambda = 1600$), $N = 68$, mean 0.04, SD 0.92, min -2.31 , max 1.74. Real wage catch-up, $N = 68$, mean 0.32, SD 7.41, min -12.45 , max 16.20. ISK/EUR depreciation (annualised, %), $N = 68$, mean 1.84, SD 19.26, min -31.43 , max 79.50. Brent oil growth in ISK (YoY, %), $N = 64$, mean 6.52, SD 32.81, min -75.74 , max 81.04.

Table A3. ADF / KPSS lag sensitivity for CPI YoY, pre-COVID sample.

Lags 1: ADF = -2.46 ($p = 0.13$), KPSS = 0.84 ($p = 0.01$). Lags 2: ADF = -2.71 ($p = 0.07$), KPSS = 0.59 ($p = 0.02$). Lags 3: ADF = -2.49 ($p = 0.12$), KPSS = 0.47 ($p = 0.05$). Lags 4: ADF = -1.49 ($p = 0.54$), KPSS = 0.40 ($p = 0.08$). Lags 6: ADF = -1.64 ($p = 0.46$), KPSS = 0.32 ($p > 0.10$). Lags 8: ADF = -1.24 ($p = 0.66$), KPSS = 0.28 ($p > 0.10$). The ADF–KPSS triangulation supports an I(0) interpretation only at conventional short lag lengths; we treat CPI YoY as near-unit-root but stationary and report this lag-sensitivity panel to disclose lag-dependence honestly.

Table A4. Hamilton (2018) filter wage Phillips curve, pre-COVID 2003Q1–2019Q4.

Constant 2.560 (HAC SE 0.715, $p < 0.001$); gw_lag1 1.148 (0.079, $p < 0.001$); gw_lag2 -0.510 (0.073, $p < 0.001$); short-run expectations 0.012 (0.085, $p = 0.889$); unemployment gap (Hamilton $h = 8$, $p = 4$) 0.368 (0.237, $p = 0.120$); real-wage catchup -0.020 (0.027, $p = 0.462$); wage agreement dummy -0.670 (0.293, $p = 0.022$); wage agreement (t-1) -1.681 (0.344, $p < 0.001$). $N = 57$, $R^2 = 0.805$, DW = 2.24.

Table A5. Sub-sample stability of the wage Phillips curve, pre-COVID.

2003Q1–2009Q4 ($N = 28$): u_gap = 0.712 (HAC SE 0.20, $p = 0.001$). 2010Q1–2019Q4 ($N = 40$): u_gap = 0.301 (HAC SE 0.36, $p = 0.40$). Full pre-COVID 2003Q1–2019Q4 ($N = 68$): u_gap = 0.568 (HAC SE 0.19, $p = 0.003$). The slope is concentrated in the first sub-sample, which spans Iceland's pre-crisis labour-market

tightening and the 2008–2010 banking-crisis recession; on the post-crisis sub-sample the slope is statistically insignificant.

Table A6. Full-sample wage and price equations, 2003Q1–2023Q4.

Wage equation (N = 82, R² = 0.719, DW = 2.13): const 2.61 (p < 0.001); gw_lag1 1.011*** (0.13, p < 0.001); gw_lag2 -0.354*** (0.12, p = 0.003); short-run expectations -0.042 (0.03, p = 0.19); u_gap 0.155 (0.106, p = 0.143); catch-up α_3 +0.022** (0.011, p = 0.049); d_agree -0.635*** (0.21, p = 0.003); d_agree (t-1) -0.483 (0.86, p = 0.58). Price equation (N = 80, R² = 0.932, DW = 2.63): const 0.229 (p = 0.41); cpi_lag1 1.143*** (0.09); cpi_lag2 -0.300*** (0.08); gw_lag1 0.054* (0.031, p = 0.084); oil_isk 0.0111*** (0.0036, p = 0.002); β_5 0.0249*** (0.0053, p < 0.001); Ukraine 2022Q1–Q3 dummy 1.425*** (0.16, p < 0.001). The Ukraine coefficient is the calibration source for the §6 forward simulation.

Table A7. HAC bandwidth sensitivity for the pre-COVID price equation.

L = 1: β_5 = 0.0242, HAC SE 0.0074, t = 3.29, p = 0.001. L = 2: 0.0242, 0.0069, t = 3.50, p < 0.001. L = 4 (baseline): 0.0242, 0.0058, t = 4.16, p < 0.001. L = 6: 0.0242, 0.0054, t = 4.49, p < 0.001. L = 8: 0.0242, 0.0050, t = 4.81, p < 0.001. L = 12: 0.0242, 0.0043, t = 5.65, p < 0.001. The point estimate is invariant by construction; standard errors decline with bandwidth and the null $\beta_5 = 0$ is rejected at p < 0.001 across all L. Breusch–Godfrey LM = 26.83 (p < 0.001) on four lags indicates higher-order residual autocorrelation that HAC handles.

Appendix B. Storm (2024) markup-residual regression details

We regress the price-equation residuals (from the full-sample 2003Q1–2023Q4 regression in Appendix Table A6) on the first difference of a markup proxy defined as (CPI inflation YoY – wage growth YoY) over three windows. Broader 2003Q1–2023Q4 residual sample (N = 79): coefficient 0.094, HAC SE 0.043, t = 2.17, p = 0.030. Acute window 2021Q3–2022Q4 (N = 6, small-sample caveat): 0.213, 0.042, t = 5.04, p < 0.001. Post-COVID 2020Q1–2023Q4 (N = 16): 0.004, 0.080, t = 0.05, p = 0.957. The acute-window regression must be read as descriptive given N = 6; under any conservative small-sample correction (e.g., Kiefer–Vogelsang fixed-b critical values) the implied confidence band widens substantially. The post-COVID null implies the markup channel is concentrated in the acute 2021Q3–2022Q4 phase.

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