DEMAND SHOCKS DURING THE POST-PANDEMIC INFLATION SURGE: AN INTERNATIONAL PERSPECTIVE*

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Abstract: This paper examines the international dimension of the post-pandemic inflation surge. We estimate an extended structural vector autoregressive (SVAR) model for Norway, Sweden, the United Kingdom, and the United States to disentangle domestic and foreign drivers of inflation. Foreign supply and demand shocks are identified through novel restrictions on import prices and trading-partner output, consistent with a simple New Keynesian model featuring firm-to-firm trade in intermediate inputs. Our results show that international demand shocks played a major role across countries. Foreign supply shocks absorb some explanatory power from domestic supply shocks, but demand factors remain the dominant source of inflation.

Keywords: *Bayesian vector autoregression, foreign factors, global inflation, inflation dynamics.*

JEL Classification: *C11, C32, E32.*

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1 Introduction

Motivation In the aftermath of the COVID-19 pandemic, the world economy experienced a dramatic surge in inflation. After reaching its highest levels since the late 1970s, inflation declined relatively quickly in most countries. Although supply chain disruptions and shocks to energy prices played a substantial role during the first phase of the surge, demand factors have become increasingly important over time. This result emerges across a broad spectrum of macroeconomic models, from SVARs, factor models and Phillips curve regressions (Ascari et al., 2023, 2024; Bergholt et al., 2025; Eickmeier and Hofmann, 2025; Giannone and Primiceri, 2024; Mori, 2025; Lansing, 2025) to fully specified structural models (Bardóczy et al., 2026; Benigno and Eggertsson, 2023; Bocola et al., 2024; Comin et al., 2023; Di Giovanni et al., 2023; Schmitt-Grohé and Uribe, 2023). Although some papers find that supply shocks have greater or comparable explanatory power (Bai et al., 2026; Beaudry et al., 2024; Shapiro, 2026; Gagliardone and Gertler, 2025), our reading of the literature is that a growing consensus points to expansionary monetary and fiscal policy, together with the spending of excess savings accumulated during the pandemic, as the primary drivers of post-pandemic inflation dynamics. However, most of the literature has implicitly abstracted from international sources of the inflation surge.

A key open question is whether the prevalence of demand is confirmed once international factors are explicitly taken into account. Investigating international factors after the COVID episode is particularly important for at least two reasons. First, as shown in Forbes et al. (2024), the post-pandemic interest rate cycle has been the most synchronized between countries, with global factors being important drivers of interest rate fluctuations. However, it is not clear a priori whether these international factors primarily operate as demand or supply shocks at the level of individual countries. Second, supply chain flows and energy prices are largely determined at the global level. Although global factors were already considered important before the post-pandemic inflation surge (see Ciccarelli and Mojon (2010), Ascari and Fosso (2024), and Auer et al. (2025)), they appear particularly relevant for understanding the post-pandemic inflation cycle.

Contribution We build a simple SVAR model that separately identifies foreign factors, thus extending the baseline framework used by Bergholt et al. (2025) and Giannone and Primiceri (2024) to study the inflation surge. We perform our analysis for four countries (Norway, Sweden, the United Kingdom and the United States) that are rather heterogeneous in terms of size and exposure to international factors. The set-up does not impose that the domestic economy cannot affect the foreign block, as is commonly assumed in open economy SVARs (Cushman and Zha, 1997). Thus, the very same framework can be applied to both small and large open economies, when assessing the role of domestic and international drivers for inflation dynamics. A separate contribution is to quantify the relative importance of international and domestic drivers.

In a first step, we introduce a foreign supply shock in addition to the standard domestic shocks to demand and supply. Building on Blanchard et al. (2015) and Benigno and Eggertsson (2023) among others, we believe that the ratio of import prices over CPI prices is informative to capture supply. While previous papers used this variable as a direct measure of the shocks, we treat it as a fully endogenous variable, but also use it disentangle foreign from domestic supply by imposing a novel magnitude restriction on the *relative* responses of import prices and core CPI. The idea is that foreign supply shocks should have a larger effect on import prices in the short run while it is natural to expect domestic shocks to have a larger effect on core CPI.

In a second step, we decompose the aggregate demand shock into a domestic component and a foreign component. This is achieved by imposing an intuitive restriction on the ratio of domestic GDP over trade-weighted GDP of trading partners. If the shock originates domestically, we expect that the numerator responds more than the denominator. The opposite should be true if the shock originates abroad, at least in the short run.

To motivate our empirical identification scheme, we incorporate firm-to-firm trade in intermediate inputs into an otherwise standard dynamic stochastic general equilibrium (DSGE) model for an open economy, à la Justiniano and Preston (2010). We simulate the model and document that our empirical identification restrictions are satisfied under a broad range of parameterizations. The restrictions are even sharper with firm-to-firm trade in intermediate inputs, which implies a cost-channel for the transmission of shocks.

RESULTS Our first result is that the predominance of demand shocks is confirmed even in the presence of a foreign supply shock. This novel shock absorbs some explanatory power from the domestic supply shock, but it does not overturn the overall dominance of demand shocks.

However, these demand shocks are not purely domestic in origin. When we allow for foreign demand shocks, the combined contribution of domestic and foreign demand shocks remains predominant—if not dominant—in all countries except Sweden, and international demand shocks are found to play a substantial role. Thus, foreign factors matter, and quite significantly so, but they manifest themselves primarily through demand-side channels.

RELATED LITERATURE We relate to a few studies that explicitly examine the role of international factors in the post-pandemic inflation surge. Forbes et al. (2024) estimate a FAVAR model for Canada, the euro area, the United Kingdom, and the United States, identifying domestic and global shocks and emphasizing their role for interest rates and the synchronization of monetary cycles across countries. Using a similar framework for 55 countries, Ha et al. (2023) find that global shocks account for about 26 percent of inflation variation in a typical economy. Aastveit et al. (2026) study the role of inflation expectations for the transmission global shocks, while Di Giovanni et al. (2023) analyze domestic and foreign sectoral and aggregate shocks in a multi-country, multi-sector New Keynesian model. More broadly, our paper relates to an earlier literature documenting the importance of foreign factors for small open economies, including Aastveit et al. (2016), Cushman and Zha (1997), Kose et al. (2003), Mumtaz and Surico (2009), and Fernández et al. (2017).

OUTLINE Section 2 describes the empirical model and the identification restrictions. Section 3 explores the theoretical foundations for our identification scheme. Section 4 present the empirical results while Section 5 concludes.

2 SVAR Methodology

In order to decompose inflation into domestic and international drivers, we rely on a simple SVAR model estimated on quarterly data for the US, the UK, Norway and Sweden. The data are in log-levels and cover the period 1993:Q1-2023:Q4 for all countries. The model in reduced form reads as follows:

$$\boldsymbol{y}_t = \boldsymbol{c} + \sum_{l=1}^{p} \boldsymbol{B}_l \boldsymbol{y}_{t-l} + \boldsymbol{\nu}_t \tag{1}$$

The vector y_t contains the endogenous variables while ν_t contains the reduced form residuals. $\boldsymbol{B}_l$ is the matrix of reduced form VAR-parameters, while c is a vector of constants. The lag length, *p*, is four. Our observable variables include GDP, core consumer prices (corresponding to the CPI excluding its most volatile components, with the exact definition for each country presented in the Appendix) and imported prices.[1] This constitutes the simplest extension of the bivariate SVARs that have been used to study the inflation surge without explicitly accounting for international factors (Bergholt et al. (2025) and Giannone and Primiceri (2024)). In an extension, we additionally use data on weighted GDP among each country's largest trading partners.

To map the reduced form residuals from equation (1) into structural shocks, we use the Bayesian algorithm of Rubio-Ramirez et al. (2010) and introduce sign restrictions on the impact responses. The identification assumptions are summarized in Panel A of Table 1. Following Canova and De Nicolò (2002), we impose that a positive demand shock leads to a rise in both consumer prices and output, while a negative supply shock leads to higher prices and lower output.

Our contribution consists in further identifying supply disturbances that originate abroad. Domestic and foreign supply shocks are set apart by imposing a magnitude restriction on imported prices and core CPI, implemented with a sign restriction on the ratio between the two variables.[2] The intuition is very simple. If an inflationary supply shock originates internationally, it is natural to assume that import prices should increase more than core CPI on impact. Core CPI may of course increase as well, but the main component is the import price index. The opposite is true for a domestic supply shock. In this case, prices of domestically produced goods and services should increase more than those of imported goods. Interestingly, the ratio between import price inflation and a measure of headline inflation is often used as a proxy for supply shocks in Phillips curve regressions (see Blanchard et al. (2015) and Benigno and Eggertsson (2023)). Here, we follow that tradition and argue that the ratio is informative to identify supply shocks, but we make one step further by disentangling domestic and international supply.

In a second step, we extend the baseline model and identify international demand shocks as well. We rely once again on a magnitude restriction, in this case on the relative response of domestic output to trading partner output for each country. Clearly, it seems natural that a shock to domestic demand, on impact, should have a relatively larger effect on domestic GDP, while a foreign demand shock should have a relatively larger effect on foreign GDP.

[1] Where available, we use a direct measure of imported consumer prices. Otherwise the import deflator.

[2] Ratio restrictions are useful when a specific variable is expected to have a large response relative to other variables in the system. Examples can be found in Furlanetto et al. (2019), Caggiano et al. (2021) and Brianti (2025).

Table 1: Structural identification scheme

Panel A: Sign restrictions in the SVAR model

Baseline	Demand	Domestic supply	Intern. supply	
Core CPI	+	+	+	
GDP	+	-	-	
Import prices/Core CPI	NA	-	+	
Extended model	Domestic demand	Domestic supply	Intern. supply	Intern. demand
Core CPI	+	+	+	+
GDP	+	-	-	+
Import prices/Core CPI	NA	-	+	NA
GDP/GDP trading partners	+	-	+	-

Panel B: Parameter bounds for the Monte Carlo simulation

Parameter	Notation	LB	UB
Inverse IES	σ, σ^*	0.5	1.5
Inverse Frisch elasticity	φ	1	3
External consumption habit	h	0	0.6
Intermediate input share in gross output	ϕ	0.3	0.7
Labor-material substitution elasticity	ω	0	1
Home bias: consumption, materials	α, α_m	0.75	0.90
Home-foreign substitution: consumption, materials	η, η_m	0.5	1.5
Taylor rule, interest rate inertia	ψ_i, ψ_i^*	0.1	0.9
Taylor rule, inflation weight	ψ_π, ψ_π^*	1.1	3
Taylor rule, output weight	ψ_y, ψ_y^*	0.1	0.15
Calvo parameters: wages, home prices, import prices	θ_w, θ_h, θ_f	0.2	0.8
Partial indexation: wages, home prices, import prices	γ_w, γ_h, γ_f	0.2	0.8
Foreign Phillips curve slope	κ^*	0.05	0.15
AR(1) coefficients for the shock processes	ρ_h, ρ_d^*, ρ_s^*	0.4	0.9

We highlight two features of our approach: first, what constitutes the international economy is allowed to differ across countries.[3] This is important because, empirically, countries differ in the composition of goods traded and trading partners. Sweden is an

[3]Note that we do not include global variables into the system. The goal is not to disentangle the drivers of global variables (see Cascaldi-Garcia et al. (2024) and Ha et al. (2025)) but rather to isolate the domestic and international components of demand and supply shocks for each individual country.

important trading partner for Norway but not for the US. Shocks in Canada likely affect the US much more than Norway. Second, domestic shocks are allowed to affect foreign variables. For example, we expect larger spillovers from the US and, to some extent, from the UK. A benefit of this specification is that we do not need to rely on a block-exogenous structure with no feedback from the country of interest to the rest of the world (Cushman and Zha (1997)). Such an assumption would be especially inappropriate for the US.

A potential issue when estimating VARs is that the deterministic trend (initial conditions) can account for a large part of the fluctuations, even at the end of the sample. In addition, the deterministic component is estimated with substantial uncertainty, the so-called excess dispersion problem discussed in Bergholt et al. (2025), which is particularly problematic when computing historical decompositions. In order to deal with the first issue we use the sum-of-coefficients prior that reduces the overfitting problem (Doan et al. (1984)). We combine this prior with the standard Minnesota (Litterman (1979)) prior and dummy-initial-observation prior and optimize the hyperparameters as in Giannone et al. (2015). In addition, to take into account the excess dispersion problem, we draw from the posterior distribution of all model parameters, construct the distribution of historical decompositions, and finally take the median contribution of each shock at each quarter (see Bergholt et al. (2025)).

3 Theoretical discussion

The theoretical foundations for the sign restrictions presented in Panel A of Table 1 deserve some discussion, as shocks operate through an array of additional and potentially opposing channels in open economies. An international supply-side disruption, for example, may reduce overall demand at home, but also cause substitution towards domestic firms who become more competitive when the terms of trade depreciate. Moreover, firm-to-firm trade in intermediate inputs accounts for a major share of international trade flows (Johnson and Noguera, 2012). Thus, exchange rate fluctuations directly affect the marginal costs of domestic firms, even if they do not engage in exports. This cost channel may affect both the level and the composition of aggregate demand and price dynamics in open economies.

3.1 A simple framework

In this section we explore a quantitative, New Keynesian model that incorporates key open economy channels in a relatively tractable way. The idea is to gauge, through Monte Carlo simulations, the sensitivity of our sign restrictions to various assumptions about the relative strengths of different transmission channels at play. Our model builds on the setup in Justiniano and Preston (2010), who seek to improve the quantitative fit of the canonical textbook framework (Gali and Monacelli, 2005). However, motivated by the supply-chain disruptions observed during early phases of the post-COVID inflation surge, we further extend the framework with international markets for firm-to-firm trade in factor inputs.

We consider two countries; home and foreign. Home is a small open economy while foreign is a closed economy representing the rest of the world. The home economy is subject to most quantitative features commonly used in the literature, including nominal wage and price stickiness, incomplete exchange rate pass-through to import prices, partial wage and price indexation, habit persistence in consumption, and an endogenous risk premium on foreign bond holdings that depends on the home economy's net foreign asset position. We abstract from the detailed exposition of these features as they are relatively standard, and instead focus on firm-to-firm trade in intermediate inputs. However, all of the model equations are listed in the appendix.

Production in the home economy is characterized by a nested structure: gross output is produced using a CES technology combining labor hours and intermediate inputs, while intermediate inputs themselves are a CES aggregate of domestically produced and imported materials. We log-linearize the model and write gross output and relative factor demand as follows:[4]

$$y_t = a_t + (1 - \phi)\, n_t + \phi m_t \tag{2}$$

$$m_t = \omega\,(w_t - p_{m,t}) + n_t \tag{3}$$

Output is denoted by y_t, hours worked by n_t, materials by m_t, and total factor productivity by a_t. The parameter ϕ represents the weight on intermediate inputs in gross output, while ω represents the elasticity of substitution between labor and materials. w_t is the real consumer wage and $p_{m,t}$ is the material price deflated by the CPI. We define the home economy's GDP in constant prices, x_t, as gross output net of intermediate inputs (properly weighted):

$$x_t = \frac{1}{1 - \tilde{\phi}} \left(y_t - \tilde{\phi} m_t \right) \tag{4}$$

Output at home is delivered as final goods to domestic households, as intermediate goods to domestic firms, or exported. Market clearing implies the following link between GDP and aggregate demand for domestic output:

$$x_t = \alpha c_t + (1 - \alpha)\,(y_t^* + \eta q_t) + (1 - \alpha)\,\eta tot_t + \frac{(1 - \alpha_m)\,\tilde{\phi}}{1 - \tilde{\phi}}\,(-m_t + \alpha_m \eta_m tot_t) \tag{5}$$

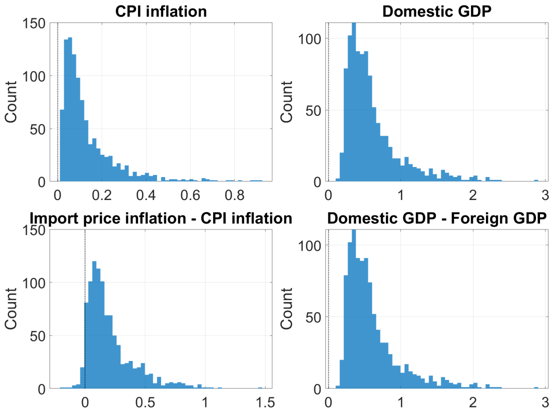
The first two terms capture, respectively, domestic and foreign demand for domestically produced final goods. The third term accounts for final goods substitution due to terms of trade changes, while the last term arises because of domestic firms' use of materials. The notation is standard: c_t represents domestic private consumption, y_t^* foreign output, q_t the real (consumer) exchange rate, and tot_t the terms of trade. Consumption and intermediate inputs are allowed to differ both in terms of their *home bias*, denoted by α and α_m respectively, and in terms of their *substitutability* between domestic and imported output. The latter is governed by the CES elasticities η and η_m, respectively. Also, importantly for our purpose, the difference between import price inflation and CPI inflation is proportional to terms of trade changes, $\pi_{f,t} - \pi_t = \alpha \Delta tot_t$, making the terms of trade a sufficient statistic for the sign restrictions we impose on relative import prices in the SVAR.

The expression above illustrates that pass-through of terms of trade volatility is particularly high when domestic firms use intermediate inputs extensively (high $\tilde{\phi}$), when these inputs have a high import share (low α_m), or when factors are easily substituted in response to relative price changes (high η_m). In contrast, the standard framework without firm-to-firm trade emerges if either $\tilde{\phi} = 0$ or $\alpha_m = 1$. This latter case implies that

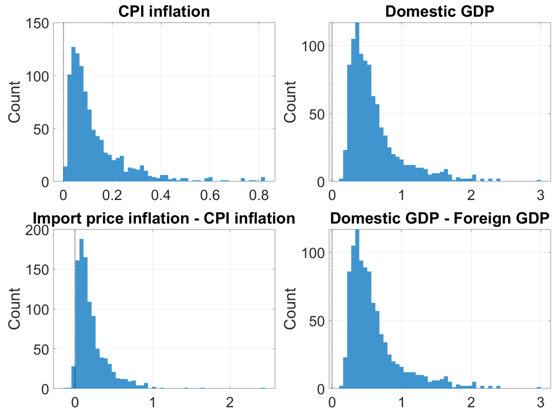
[4] All variables are expressed as percentage deviations from their steady state values unless otherwise noted.

Figure 1: Impact response distributions, domestic shocks

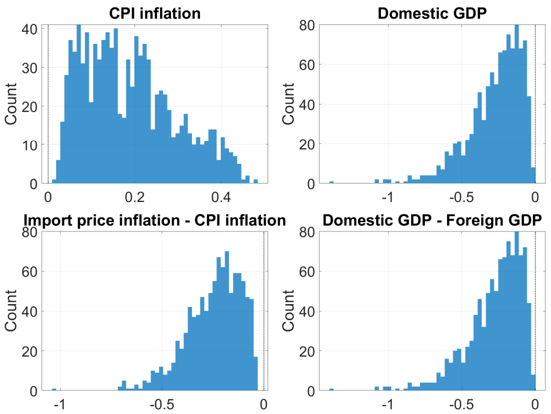
(a) Domestic demand, no intermediate inputs



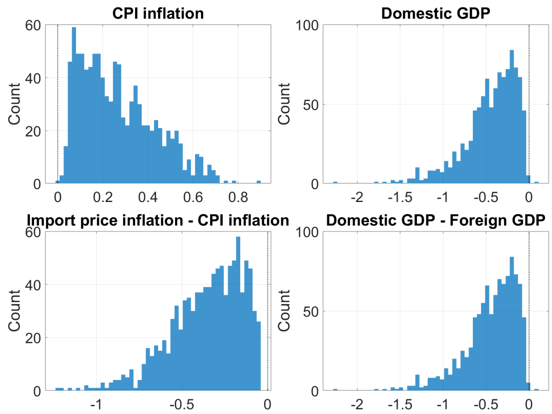
(b) Domestic demand, with intermediate inputs



(c) Domestic supply, no intermediate inputs



(d) Domestic supply, with intermediate inputs



all materials are produced at home, so that the intermediate input flows cancel out when computing aggregate GDP.

The marginal cost for domestic firms can be expressed as follows in the presence of intermediate inputs:

$$mc_{h,t} = -a_t + (1-\phi)\, w_t + (1-\alpha)\, tot_t + \phi p_{m,t} + z_{h,t} \tag{6}$$

We interpret the exogenous shifter $z_{h,t}$ as a domestic supply (cost-push) shock.

Finally, turning to the foreign economy, we aim for parsimony during the simulation exercise and treat it as a simplified version of the home economy. That is, in addition openess, we shut off wage stickiness, habit, indexation, and intermediate inputs in the foreign economy. This reduces foreign to the textbook closed-economy model with 3 equations.

3.2 Theory robust restrictions

Next, we use the model to evaluate the sign restrictions in Table 1 quantitatively. The following simulation exercise is conducted: first, we draw a parameter vector Θ that includes all the parameters of interest in the model.[5] Each element in Θ is drawn independently from a uniform distribution specified further below. Second, we solve the model conditional on Θ and compute impulse responses to selected shocks. For our purpose, we are interested in the *impact* responses of the variables included in the SVAR, as the signs are imposed on impact only. We repeat the exercise 1000 times and save all impact responses. Finally, we inspect the resulting distribution of impact responses to gauge how robust the sign restrictions are to parameter uncertainty.

Panel B in Table 1 reports the bounds we use for the uniform parameter distributions in the simulation exercise. These bounds span common values in the literature, as well as observed import and cost shares across OECD countries. Draws of the parameter ϕ, for example, which determines the steady-state share of intermediate inputs in gross output, cover the range 0.3-0.7. Observed values in the OECD are typically close to 0.5. Moreover, since α and α_m are drawn separately from uniform distributions bounded between 0.75 and 0.90, the implied import share in aggregate GDP ranges from 10% to 80%, with a median equal to 35% in the simulations.[6] Except for a couple of outliers, all reported import shares in the OECD are well within this range.[7] The risk aversion parameter σ covers the interval 0.5-1.5, implying log utility at the mean. The substitution elasticity between labor and materials is bounded between 0 (Leontief) and 1.5, consistent with the estimates by Atalay (2017). We also consider a wide range of Calvo parameters—the bounds imply average nominal wage and price spells ranging from 1.25 to 5 quarters.

Figure 1 and Figure 2 report simulation results for four shocks: (i) an expansionary monetary policy shock capturing domestic demand shifts, (ii) a cost-push shock which raises domestic prices, labeled domestic supply, (iii) a demand shock to the foreign IS equation, and (iv) a foreign cost-push shock that raises global inflation. For each shock, we compare impact response distributions in a baseline model without intermediate inputs ($\phi = 0$) with those in a model with intermediate inputs ($\phi > 0$). This comparison illustrates how the cost channel associated with firm-to-firm trade affects the validity of our identifications scheme.

The histograms in the panels (a) and (b) in Figure 1 show that, following an expansion in demand at home, both GDP and CPI inflation rise on impact across all of the parameter combinations considered. Domestic GDP naturally rises relative to the trading partners as well. A domestic supply shock, in contrast, causes GDP and inflation to go in opposite directions, as shown in panels (c) and (d). Moreover, because the contractionary supply shock originates domestically, domestic producer prices rise relative to import prices, causing the terms of trade to appreciate. These results hold both with and without material inputs. Thus, all sign restrictions associated with the *domestic* shocks in Table 1 appear theory robust, regardless of whether firms use intermediate inputs.

The picture becomes more complicated when we turn to foreign shocks, as partially opposing effects are at play. An increase in foreign demand, for example, may (i) raise aggregate demand for domestic output at given relative prices, (ii) depreciate the terms of trade and create substitution toward domestic firms for a given level of aggregate de-

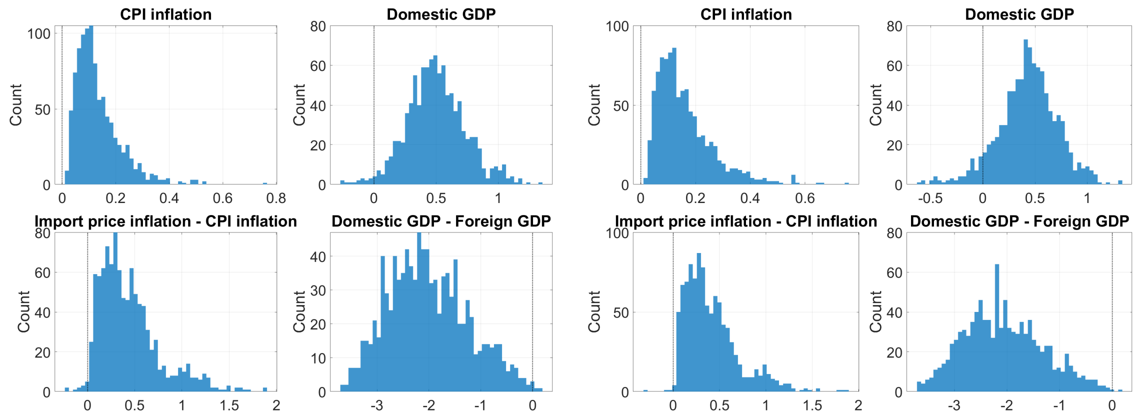
[5] 26 parameters are drawn and collected in Θ, see Panel B of Table 1.

[6] These numbers follow from the steady-state import-to-GDP share in the model, which can be derived as $\frac{1-\alpha(1-\phi)-\alpha_m\phi}{1-\phi}$.

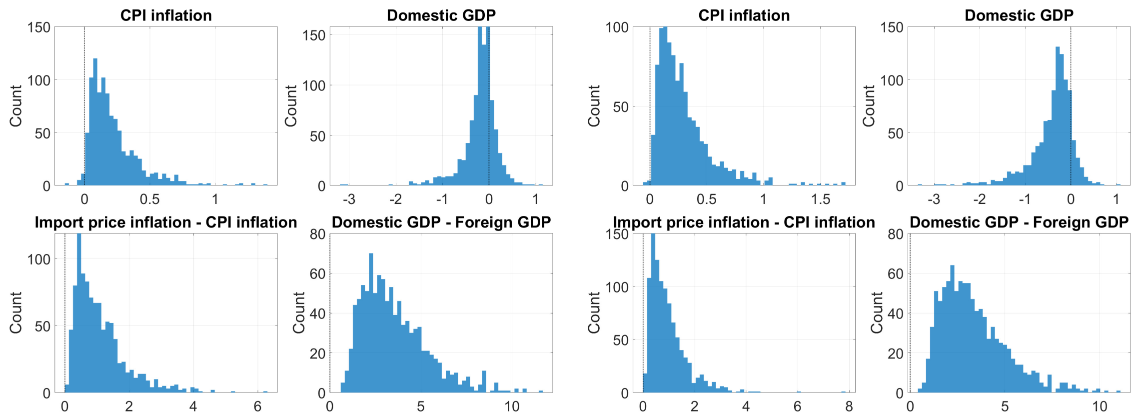
[7] Ireland and Luxembourg had import shares exceeding 100% in 2024, according to World Bank data. The US is located at the other end of the spectrum, with an import share of 14% in 2024.

Figure 2: Impact response distributions, foreign shocks

(a) Foreign demand, no intermediate inputs (b) Foreign demand, with intermediate inputs



(c) Foreign supply, no intermediate inputs (d) Foreign supply, with intermediate inputs



mand, and (iii) increase factor prices and producer costs, shifting domestic firms' supply inward. While the first two channels are expansionary for domestic GDP, the cost channel is contractionary. This raises the question of whether our sign restrictions are robust to the inclusion of intermediate inputs. A comparison of panels (a) and (b) in Figure 2 suggests that this concern is quantitatively less relevant. Although the share of simulations with an initial decline in domestic GDP increases from 2% to 7% when intermediate inputs are introduced, the overall pattern remains unchanged: higher foreign demand tends to raise inflation and GDP in both economies, with larger GDP effects abroad. Importantly, this latter observation allows us to separate between domestic and foreign demand shocks.

Finally, panels (c) and (d) in Figure 2 report impact responses to foreign supply shocks, which raise foreign inflation and lower foreign output. Here, the expansionary substitution effect from a terms of trade depreciation works against our sign restriction that domestic GDP falls on impact. The cost channel, however, reinforces this restriction, suggesting that intermediate inputs may strengthen our identification scheme. This is confirmed in the figure: without intermediate inputs, domestic GDP rises, thereby violating the restriction, in one quarter of simulations, whereas this share falls to 12% when intermediate inputs are included. Nevertheless, foreign GDP declines more strongly in the vast majority of draws in both models, justifying its use as a ratio restriction in the

SVAR.

Overall, the simulation exercise supports our identification strategy. The main exceptions are occasional sign violations for domestic GDP following foreign shocks, although the restrictions generally remain valid. Moreover, allowing for empirically relevant imported-input cost channels strengthens the restrictions in the case of foreign supply shocks. We have also examined other disturbances, including innovations to TFP, labor supply and the UIP risk premium, and the sign patterns remain broadly robust.

Nevertheless, we acknowledge that basic sign restrictions may fail to disentangle demand and supply shocks in specific contexts, even in closed economies. In fact, supply shocks can generate a positive co-movement between inflation and output in response to specific kind of productivity shocks (Adam and Weber (2025)), at the zero lower bound (Wieland (2019)), or if the monetary policy authority misperceives the persistence of the shocks (Erceg et al. (2024)). Similarly, government spending shocks may generate an inverse co-movement (Jørgensen and Ravn (2022)). In such cases, the conventional demand–supply distinction becomes blurred. Nonetheless, our identified shocks retain a clear economic interpretation as either trade-off-generating or non-trade-off-generating forces—a distinction that remains central for monetary policy, as optimal responses depend on these underlying trade-offs (see Walsh (2025) and Hakamada and Walsh (2024) for an evaluation of monetary policy during the surge).

4 Results: The role of foreign shocks

In this section, we document the factors driving post-pandemic inflation dynamics in the baseline SVAR model, as well as in the extension with foreign demand shocks. Moreover, we analyze the sources of inflation volatility over the full sample.

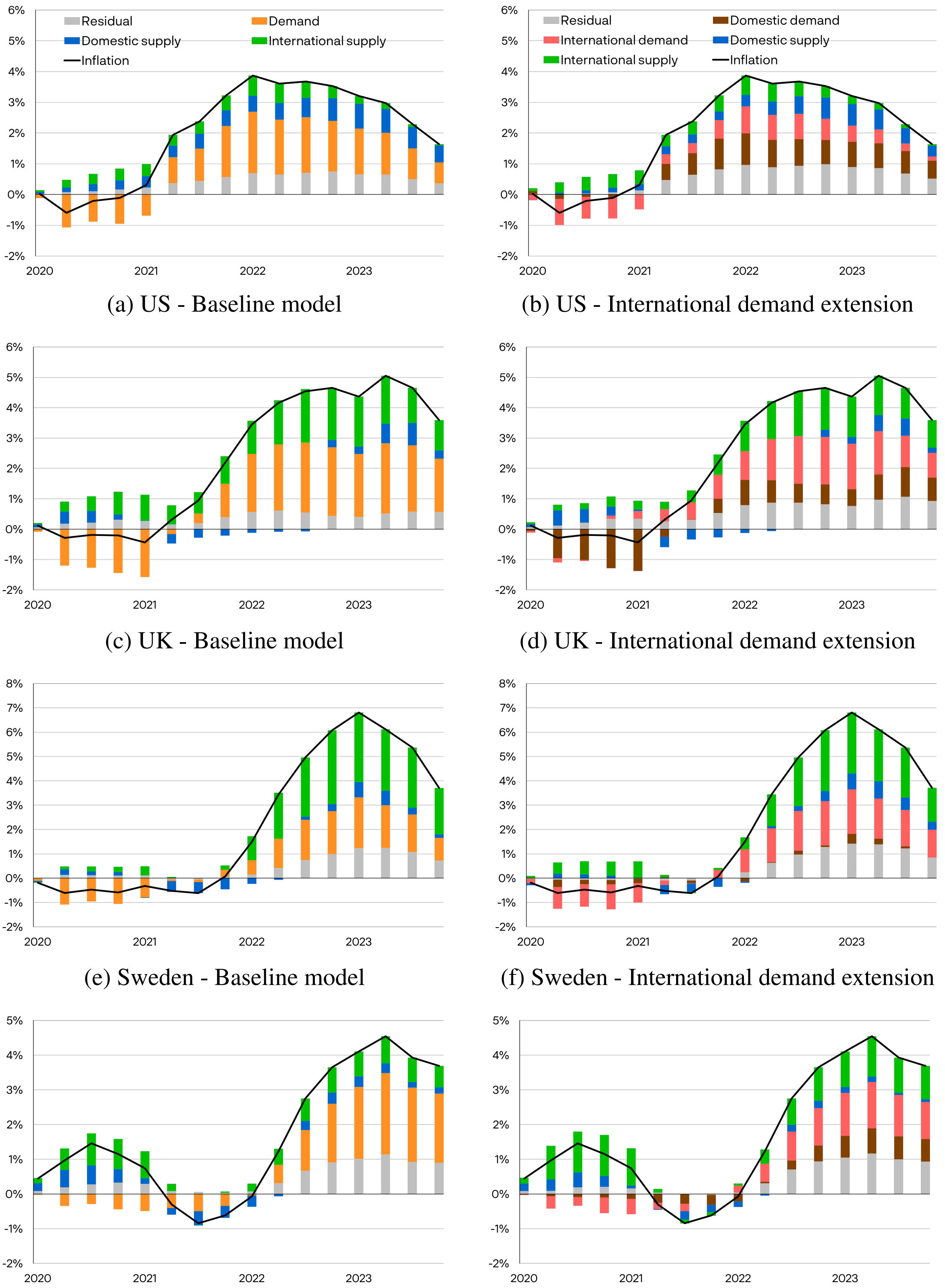
4.1 Baseline model

Figure 3 presents historical decompositions of Core CPI inflation, measured as deviations from its 2019:Q4 level, for the four countries in our sample.[8] Inflation dynamics in the European economies lag those in the United States by roughly 2–4 quarters, consistent with Giannone and Primiceri (2024) for the euro area, and remain heterogeneous, with Sweden experiencing the fastest disinflation.

Our main result is that the prevalence of demand shocks remains clear even when international supply shocks are accounted for. Demand shocks pulled inflation down in 2020 in all countries, but since 2021 they have been the main source of the inflation surge in the US and the UK, and since 2022 in Norway. This is consistent with previous literature, see Bergholt et al. (2025) and Giannone and Primiceri (2024). International supply shocks matter, particularly in the European economies, but they mainly absorb explanatory power from domestic supply shocks rather than from demand. Thus, we find limited support for the narrative of an inflation surge primarily driven by adverse disturbances to foreign supply.

[8] The grey residual component captures the limited variation in the deterministic component since 2019, consistent with Schmitt-Grohé and Uribe (2024), as well as the residual induced by taking the median contribution of each shock (see Section 2).

Figure 3: Historical decompositions for inflation relative to 2019:Q4



(a) US - Baseline model

(b) US - International demand extension

(c) UK - Baseline model

(d) UK - International demand extension

(e) Sweden - Baseline model

(f) Sweden - International demand extension

(g) Norway - Baseline model

(h) Norway - International demand extension

Sweden is a partial exception, as foreign supply shocks are the largest contributors to Swedish inflation and the only case in which supply drivers jointly dominate demand. One possible explanation is Sweden's less expansionary fiscal policy relative to Norway, combined with less stringent COVID-related restrictions (Ingves, 2024). At the same time, the role of supply shocks is perhaps amplified by the omission of foreign demand, a point we turn to next.

4.2 Extension with foreign demand shocks

Results from the extended model where we separately identify foreign supply and foreign demand, in addition to the two domestic shocks, are reported in the right column of Figure 3.

Three observations stand out: first, the two demand shocks combined remain prevalent—if not dominant—in all countries except Sweden. Second, *domestic* demand shocks remain as a major factor only in the United States, whereas international demand has played a more important role in the three European economies. Third, international shocks overall—combining demand and supply components—account for a substantial share of inflation dynamics in all countries, particularly in Europe.

The prominent role of *international* demand forces during the inflation surge is a novel result. However, our findings are not necessarily at odds with Bernanke and Blanchard (2025), who emphasize shocks to prices given wages. For example, high oil and commodity prices—the key price shocks in their framework—may reflect either supply disruptions or a strong recovery in global demand, as emphasized by Peersman (2025).[9] In our framework, the former is captured by international supply shocks, while the latter maps into international demand shocks. As noted by Giannone and Primiceri (2024), Bernanke and Blanchard (2025) treat food, energy prices, and supply shortages as exogenous, making a policy-relevant demand–supply decomposition difficult. Our contribution is to show that the synchronized global recovery—supported by expansionary fiscal and monetary policies—can be interpreted as being driven primarily by international demand.

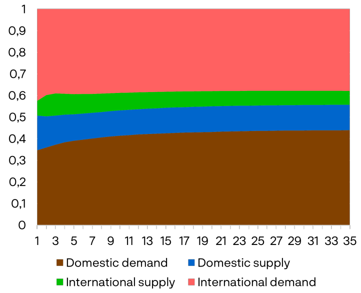
4.3 Variance decompositions

While the analysis so far has focused on the post-COVID inflation surge, one may ask whether this episode was exceptional or whether the relative importance of shocks resembles that in the rest of the sample. To address this question, we examine the estimated forecast error variance decomposition of core CPI at different horizons. The variance decomposition summarizes the relative importance of each shock over the full sample. The first column of Figure 4 reports these decompositions by country, with the forecast horizon on the horizontal axis and the share of explained variance in the forecast error on the vertical axis. Overall, the inflation surge does not appear particularly unusual relative to the broader sample.

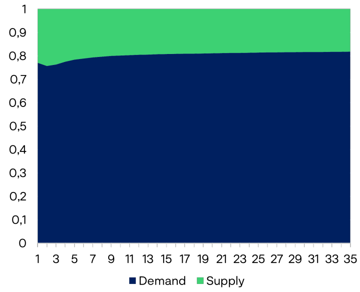
In the second column, we combine the two demand shocks and, analogously, the two supply shocks to provide a simple comparison of demand and supply forces. Demand shocks dominate in the United States and remain prevalent in the United Kingdom. By contrast, supply shocks are slightly more important in Norway and substantially more

[9] Castelnuovo et al. (2024) disentangle the supply-driven component of food, oil, and industrial input prices and highlight the role of monetary policy in shaping responses to these shocks.

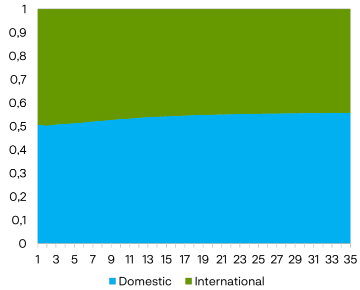
Figure 4: Variance decomposition of core CPI in the extended model



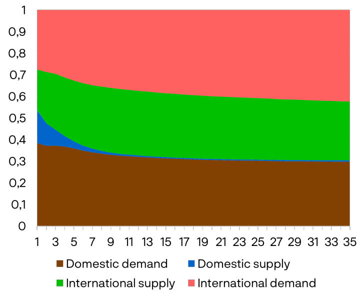
(a) US - all shocks



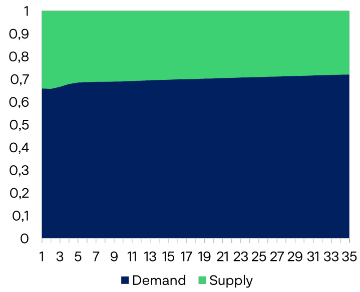
(b) US - supply vs demand



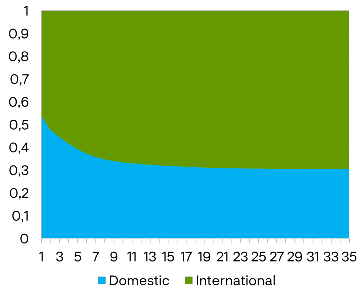
(c) US - domestic vs foreign



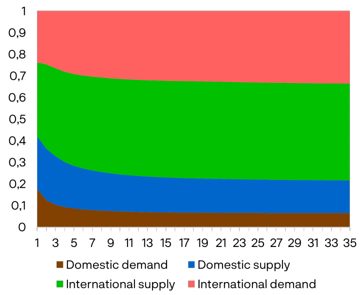
(d) UK - all shocks



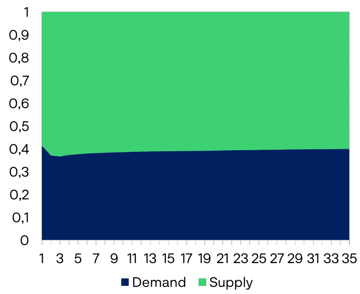
(e) UK - supply vs demand



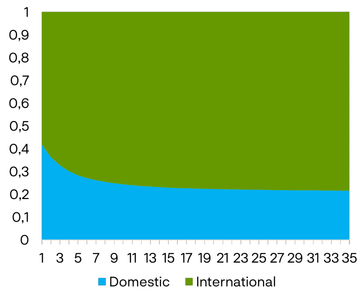
(f) UK - domestic vs foreign



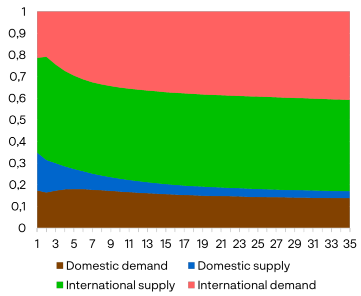
(g) SWE - all shocks



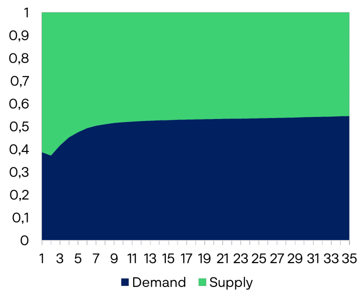
(h) SWE - supply vs demand



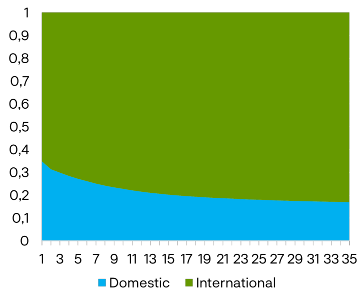
(i) SWE - domestic vs foreign



(j) NOR - all shocks



(k) NOR - supply vs demand



(l) NOR - domestic vs foreign

important in Sweden. In the third column, we combine domestic and international shocks, respectively. International shocks are important in all countries, particularly in the smaller and more open European economies, but also to a meaningful extent in the United States.

5 Conclusion

This study revisits the drivers of the post-pandemic inflation surge and provide additional evidence in favor of demand-side factors. However, relative to existing literature, we estimate a SVAR model extended to incorporate *foreign demand and supply shocks*, and document a major role for international demand spillover. Thus, while foreign factors—to varying degrees—are important drivers of inflation in all countries considered, they should not be viewed solely through the lens of supply disruptions.

We also stress that this result contrasts with those typically reported in studies based on estimated DSGE models. The latter typically attribute inflation volatility primarily to supply disturbances—such as price and wage markup shocks (Smets and Wouters, 2007)—and to domestic disturbances (Justiniano and Preston, 2010). By contrast, our analysis highlights the importance of both demand and international factors.

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Appendix

A Data

All data are quarterly and sourced from official national statistical agencies or international institutions to ensure consistency and comparability. Data was collected in 2024.

- **Output:**
  - Output measured as GDP for each country in log-level terms. For Norway output is given by mainland GDP.
  - Sources: Bureau of Economic Analysis (BEA), Office of National Statistics (ONS), Statistics Sweden (SCB), Statistics Norway (SSB).
- **CPI:**
  - Measures of core CPI in log-level terms for each country; definitions vary across countries.
  - US: The personal consumption expenditures (PCE) index excluding food and energy, from the BEA.
  - UK: Consumer price index excluding energy goods, alcoholic beverages and tobacco, from the ONS.
  - Sweden: Core CPI measured as consumers price index with fixed interest rate excluding energy (CPIF-XE), from SCB.
  - Norway: Core CPI measured as the consumer price index excluding taxes and energy goods (CPI-ATE), from SSB.
- **Imported prices:**
  - Imported prices given in log-level terms. Measured as imported consumer prices where available, otherwise the import deflator.
  - US: End-use import price index for consumer goods, excluding automotives, from the BEA.
  - UK: Imports of goods and services deflator, from the ONS.
  - Sweden: Imported goods and services in the consumer price index (category H 997 in *"Riksbank tabeller"*), from SCB.
  - Norway: Imported goods in the consumer price index, from SSB.
- **International Extension:**
  - Export-weighted GDP for each country's five largest trading partners (by exports).
  - US: Export weights calculated based on total domestic exports in 2023, published by the United States International Trade Commission (DataWeb). GDP-figures for the five largest trading partners (Canada, China, Japan, Mexico and the Netherlands) from the OECD.

- UK: Export weights calculated based on the dataset *"UK total trade: all countries, seasonally adjusted"* for 2023, published by the ONS. GDP figures for the five largest trading partners (US, Germany, Ireland, the Netherlands, France) from the OECD.
- Sweden: Export weights calculated based on total value of exports of goods to country of destination for 2023, published by SCB. GDP-figures for the five largest trading partners (Germany, Norway, US, Denmark, Finland) from the OECD.
- Norway: Export weights calculated based on value of mainland exports of goods in 2023, published by SSB. GDP-figures for the five largest trading partners (Sweden, the Netherlands, UK, US, Germany) from the OECD.

B THE MODEL

The full set of model equations is listed below:

CPI inflation: $$\pi_t = \alpha \pi_{h,t} + (1-\alpha)\,\pi_{f,t} \tag{B.1}$$

Material price inflation: $$\pi_{m,t} = \alpha_m \pi_{h,t} + (1-\alpha_m)\,\pi_{f,t} \tag{B.2}$$

Domestic inflation: $$\pi_{h,t} = \beta \mathbb{E}_t\left(\pi_{h,t+1} - \gamma_h \pi_{h,t}\right) + \gamma_h \pi_{h,t-1} + \kappa_h mc_{h,t} \tag{B.3}$$

MC, domestic: $$mc_{h,t} = -a_t + (1-\phi)\,w_t + (1-\alpha)\,tot_t + \phi p_{m,t} + z_{h,t} \tag{B.4}$$

Import inflation: $$\pi_{f,t} = \beta \mathbb{E}_t\left(\pi_{f,t+1} - \gamma_f \pi_{f,t}\right) + \gamma_f \pi_{f,t-1} + \kappa_f mc_{f,t} \tag{B.5}$$

MC, imports: $$mc_{f,t} = e_t + p_t^* - p_{f,t} + z_{f,t} = q_t - \alpha tot_t + z_{f,t} \tag{B.6}$$

Gross output: $$y_t = a_t + (1-\phi)\,n_t + \phi m_t \tag{B.7}$$

Material demand: $$m_t = \omega\left(w_t - p_{m,t}\right) + n_t \tag{B.8}$$

Constant price GDP: $$x_t = \frac{1}{1-\tilde{\phi}}\left(y_t - \tilde{\phi} m_t\right) \tag{B.9}$$

Aggregate demand: $$x_t = \alpha c_t + (1-\alpha)\left(y_t^* + \eta q_t\right) + (1-\alpha)\,\eta tot_t + \frac{(1-\alpha_m)\,\tilde{\phi}}{1-\tilde{\phi}}\left(-m_t + \alpha_m \eta_m tot_t\right) \tag{B.10}$$

Wage inflation: $$\pi_{w,t} = \beta \mathbb{E}_t\left(\pi_{w,t+1} - \gamma_w \pi_t\right) + \gamma_w \pi_{t-1} - \kappa_w \mu_{w,t} \tag{B.11}$$

Wage markup: $$\mu_{w,t} = w_t - \left(\varphi n_t - \lambda_t\right) - z_{w,t} \tag{B.12}$$

Marginal utility: $$\lambda_t = -\frac{\sigma}{1-h}\left(c_t - h c_{t-1}\right) \tag{B.13}$$

Euler equation: $$\lambda_t = \mathbb{E}_t \lambda_{t+1} + \left(i_t - \mathbb{E}_t \pi_{t+1}\right) + v_t \tag{B.14}$$

Real wage: $$w_t = w_{t-1} + \pi_{w,t} - \pi_t \tag{B.15}$$

Real material price: $$p_{m,t} = p_{m,t-1} + \pi_{m,t} - \pi_t \tag{B.16}$$

Terms of trade: $$tot_t = tot_{t-1} + \pi_{f,t} - \pi_{h,t} \tag{B.17}$$

Real exchange rate: $$q_t = q_{t-1} + \Delta e_t + \pi_t^* - \pi_t \tag{B.18}$$

Net foreign assets: $$nfa_t = \beta^{-1} nfa_{t-1} + tb_t \tag{B.19}$$

Trade balance: $$tb_t = y_t - \left(1-\tilde{\phi}\right)\left[c_t + (1-\alpha)\,tot_t\right] - \tilde{\phi}\left[m_t + (1-\alpha_m)\,tot_t\right] \tag{B.20}$$

Nominal exchange rate: $$i_t = i_t^* + \mathbb{E}_t \Delta e_{t+1} - \xi nfa_t + \varepsilon_t \tag{B.21}$$

Nominal interest rate: $$i_t = \psi_i i_{t-1} + (1-\psi_i)\left(\psi_\pi \pi_t + \psi_y x_t\right) + s_t \tag{B.22}$$

Foreign output: $$y_t^* = \mathbb{E}_t y_{t+1}^* - (1/\sigma^*)(i_t^* - \mathbb{E}_t \pi_{t+1}^*) + v_t^* \tag{B.23}$$

Foreign inflation: $$\pi_t^* = \beta \mathbb{E}_t \pi_{t+1}^* + \kappa^*(y_t^* + z_t^*) \tag{B.24}$$

Foreign interest rate: $$i_t^* = \psi_i^* i_{t-1}^* + (1-\psi_i^*)(\psi_\pi^* \pi_t^* + \psi_y^* y_t^*) + s_t^* \tag{B.25}$$

We have defined $\kappa_h = \frac{(1-\theta_h)(1-\beta\theta_h)}{\theta_h}$, $\kappa_f = \frac{\left(1-\theta_f\right)\left(1-\beta\theta_f\right)}{\theta_f}$, $\kappa_w = \frac{(1-\theta_w)(1-\beta\theta_w)}{\theta_w(1+\epsilon\varphi)}$, and $\tilde{\phi} = \phi\frac{\epsilon-1}{\epsilon}$. The parameter ϵ represents the elasticity of substitution between individual firms' output, and between individual workers' labor services.