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On Inflation Dynamics: International Comovements, Nonlinearities, and Persistence

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TEP Working Paper No. 1825

November 2025

Revision Date: January 2026

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On Inflation Dynamics: International Comovements, Nonlinearities, and Persistence*

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January 7, 2026

Abstract

This paper examines the link between international inflation comovements, deviations from international inflation, and idiosyncratic inflation persistence. Our results indicate that stronger international comovements produce smaller, more persistent gaps between domestic and international inflation. We find that international inflation continues to exert a strong pull on domestic inflation despite notable fluctuations in international comovements. Detecting adjustment nonlinearities, we estimate the typical half-life of inflation shocks for relatively large, moderate, and small inflation deviations to be under 1 month, 2 months, and 18 months respectively. Geographic proximity, openness, exchange rate rigidity, international reserves, economic size, and uncertainty are found to be inversely related to the size of inflation gaps, due to their positive effects on international comovements. The impact on persistence, however, is ambiguous, as it is a function of not just the inflation gap, but also the speed of adjustment for a given size of the deviation. As the latter component covaries positively with most drivers, the net impact on persistence ultimately depends on the channel that dominates in the sample.

Keywords: inflation dynamics, international comovements, inflation gaps, nonlinear adjustment, persistence, openness

JEL: E31, E32, E5, F41

*I am grateful to Daragh Clancy, Vahagn Galstyan, Philip Lane, Matija Lozej and participants at the Central Bank of Ireland research seminar series for very helpful discussions and feedback. I thank Albian Krasniqi and Varun Gokul Kumar for excellent research assistance.

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1 Introduction

The persistence of inflation is a topic of central interest to those involved in macroeconomic modeling and policy making groups (Fuhrer and Moore, 1995; Benati, 2008; Fuhrer, 2010; De Michelis *et al.*, 2024). Measures of inertia in the adjustment of prices provide insight into the effectiveness of, and scope for, monetary policy action. If, for example, prices fail to accordingly decelerate in times of economic slack, the ability to reduce interest rates becomes limited. Excessive price stickiness, moreover, can hinder real exchange rate adjustment and thus corrections in external imbalances (Curran and Velic, 2019; Velic, 2024).

A second strand of the literature meanwhile focuses on the "globalization of inflation" (Monacelli and Sala, 2009; Ciccarelli and Mojon, 2010; Mumtaz and Surico, 2012; Kamber and Wong, 2020; Peersman, 2022; Carluccio *et al.*, 2023; Ascari and Fosso, 2024; Gerlach and Stuart, 2024). It often highlights how domestic inflation is largely a global phenomenon, driven by a common factor that accounts for most of national variances. The drivers of these international comovements can vary from relatively homogeneous structural trends and policies to the cross-border propogation of inflationary shocks through real and financial channels (Auer *et al.*, 2019, 2025). Lane (2020), for example, suggests that negative global shocks may induce strong, durable inflation comovements in a world of low inflation and interest rates, due to potential policy constraints associated with the zero lower bound.

Although less well explored, as implied by recent refinements to the ECB's monetary policy strategy (Boeckx *et al.*, 2025), nonlinear inflation dynamics are the subject of scrutiny in a third strand of the literature. In particular, studies belonging to the latter investigate asymmetric adjustments over the size of monetary shocks (Blanco *et al.*, 2024), inflation gaps from the target (Orphanides and Wilcox, 2002; Martin and Milas, 2004, 2010; Gregoriou and Kontonikas, 2005, 2006; Aksoy *et al.*, 2006; Nobay *et al.*, 2007), macroeconomic stress episodes (Arghyrou *et al.*, 2005), and the direction of price changes (Alvarez *et al.*, 2006; Fabiani *et al.*, 2006; Nakamura and Steinsson, 2008; Kanellopoulos and Koutroulis, 2016).

In this paper, we combine the aforementioned dimensions of the literature to measure the persistence of domestic inflation deviations from common international patterns in a nonlinear framework. Nonlinearities are manifested in the form of asymmetric adjustments over the size of gaps between national and international inflation rates. This, in turn, allows us to study the link between i) international inflation comovements, ii) deviations from international inflation, and iii) idiosyncratic inflation persistence on a country-by-country basis and over the cross section. We then delve deeper into our country-specific findings by analyzing the potential macroeconomic and geographic determinants of i)-iii) in panel regressions.

According to our results based on 38 developed and emerging markets, while cross-country inflation comovements fluctuate notably over time, international inflation continues to exert a strong gravitational force on domestic inflation over the long run. We find that domestic inflation adjustments and volatility are significantly higher for larger deviations from international inflation trends, thus suggesting the presence of nonlinear dynamics. Allowing for asymmetric adjustment over disparate inflation gap sizes, we estimate the typical half-life of inflation shocks for relatively large, moderate, and small inflation deviations to be less than 1 month, less than 2 months, and 12-18 months respectively. These results are thus somewhat reminiscent of ideas originating in the "opportunistic approach to disinflation", in the sense that corrections to inflation are more aggressive for larger departures from its target.

Our country-specific and cross-section assessments reveal that higher correlations between domestic and international inflation rates are systematically associated with smaller, more persistent deviations from international inflation patterns. On its own, our finding of a positive link between idiosyncratic inflation inertia and international inflation comovements may appear counterintuitive. However, recognition of two key ingredients helps to rationalize this result: a) the nonlinear nature of idiosyncratic inflation adjustments over different inflation gap sizes and b) the negative link between international inflation correlations and deviations from international inflation. Focusing on underlying determinants in systems of panel equations, we find that a number of macroeconomic and geographic factors play a role. By strengthening comovements with international inflation, higher trade and financial openness, relative economic size, exchange rate rigidity, international reserves, geographical proximity to other countries, and uncertainty attenuate the size of inflation gaps from the international trend.

A priori, the corresponding implications for idiosyncratic inflation persistence are ambiguous. This is ascribed to the fact that the effective rate of inflation adjustment is governed by two arguments in theory. The first of these is the rate of adjustment for a given size of the inflation deviation. The second is the absolute size of the inflation gap itself. On the one hand, the aforementioned macroeconomic and geographic correlates augment idiosyncratic inflation persistence by reducing the size of deviations from international inflation. On the other hand, we find that most of these drivers exhibit a positive relation with the speed of convergence holding constant the size of inflation gaps, thus implying a deterioration in idiosyncratic inflation persistence. Consequently, net effects on inertia hinge on the channel that dominates in the sample.

The traditional Phillips curve implies that comovements in national business cycles should, to some degree, also result in synchronized national inflation rates. Global trends have the ability to alter trade-offs in the conduct of national monetary policy. Accordingly, the relevance of global inflation has led to the introduction of augmented Phillips curve frameworks that employ decompositions to jointly model local and global driving forces (Eickmeier and Pijnenburg, 2013). The central risk of neglecting international developments is to overvalue the impact of domestic affairs, including national macroeconomic policies. The extent of international inflation comovements, as a result, has been a subject of intense debate amongst those in monetary policy circles. Nevertheless, its dynamics and underlying drivers are still not well understood. Our paper in this respect fills a few important gaps in the field.

Firstly, to the best of our knowledge, it is the only study to explicitly model asymmetric adjustment over the size of idiosyncratic inflation gaps on a country-by-country basis. Our findings suggest that this modification has significant implications for the modeling of structural persistence in macroeconomic models. In comparison, the two closest studies to ours by Ciccarelli and Mojon (2010) and Gerlach and Stuart (2024), with respect to idiosyncratic inflation persistence, rely on basic linear autoregressive models, where the latter investigation fails to adequately account for serial correlation. These analyses, moreover, use much smaller country samples that are confined to just advanced economies. While Gerlach and Stuart (2024) conclude that the local component of inflation evolves quite sluggishly in modern data, Ciccarelli and Mojon (2010) suggest that it may be short lived. By accurately capturing the dynamics of idiosyncratic inflation, we highlight that the truth is somewhere in the middle, with the speed of convergence depending on the size of deviations from international inflation. Indeed, Ciccarelli and Mojon (2010) recommend that future work explore other univariate frameworks and is expanded to cover emerging markets.

Second, we systematically explore the evolution of inflation comovements, gaps, and inertia, as well as their interconnection, which is not so obvious from a theoretical viewpoint. For example, although a positive relation between national and international inflation may produce smaller idiosyncratic inflation gaps, an inverse relation may do the same in certain cases of divergence in competitiveness across home and foreign markets. Establishing the relation between these three facets of inflation dynamics therefore becomes particularly important for emerging economies following economic convergence criteria.

Third, as the recent *Research Handbook on Inflation* suggests, there are many studies on the drivers of global inflation, but not so many on the drivers of international inflation comovements, the associated inflation gaps, and idiosyncratic inflation persistence. In comparison to the literature, we offer a comprehensive analysis of the underlying forces shaping these three inextricably linked dimensions of inflation dynamics. We provide evidence that both real and monetary factors matter on this front, finding that their impact on the speed at which inflation deviations peter out over time is not so clear cut.

Cross-country inflation differentials can be offset by nominal exchange rate adjustments. This implies that more flexible exchange rate regimes can curtail the proliferation of inflation shocks across borders in a well-integrated global economy, while a “fear of floating” increases international inflation comovements. More generally, some factors, such as economic globalization, will be more related to the trend component of inflation comovements. Others, on the other hand, will be tied to fluctuations at the business cycle level. This includes higher levels of uncertainty and risk aversion spread through contagion during global crises, which can culminate in more synchronized recessionary phases.

The convergence in inflation targeting policies across national central banks may be reflected in inflation comovement trends. We find that a lower inflation variance around the central bank target leads to greater synchronization with international trends. However, another related avenue is the impact of central bank independence, which is important in terms of anchoring expectations through institutional credibility. Such autonomy may act as a shield against global shocks, inducing lower inflation comovements. Conversely, it can have the opposite effect if it produces convergence toward lower, more stable levels of inflation observed in the developed world. At the other end, lower levels of independence can decouple national inflation from international trends through public debt mismanagement that amplifies business cycles and macroeconomic volatility. In the case of systemically important large economies, however, such conduct may be associated with international contagion that raises national inflation correlations. Assessing the implications of central bank independence in robustness checks, we do not find that it plays a significant role in any of our regressions. We partly attribute this result to the lack of sufficiently long time series in our sample, which would need to span many decades in order to accordingly capture the impact of central bank reforms.

Our conclusions naturally have implications for inflation forecasting, international policy coordination, optimal monetary policy, and optimum currency areas. Although international inflation acts as a robust attractor, our results indicate that after accounting for common trends, remaining domestic inflation, particularly for smaller gaps, still has some structure to it. Our findings run counter to the arguments of, for instance, Benati (2008), who claims that inflation has become a purely forward-looking process, so that no mechanisms with backward-looking features are required to fit the data. This suggests that feeding inflation persistence into macroeconomic models as a structural component is possibly misleading.

In the context of our model, however, the argument is more nuanced. While idiosyncratic inflation components that are moderate to large in size display very little inertia, small inflation gaps are characterized by some level of structural persistence. Suggestions of a flattening Philips curve post 1980s are related to, for example, policy improvements, expectations anchoring, and globalization (Hazell *et al.*, 2022; Heise *et al.*, 2022; Bergholt *et al.*, 2024). The resurgence of inflation in recent years, however, has rekindled interest in short- to medium-run inflation dynamics, and, in particular, the notion of persistence and its sources (Blanchard, 2021; Budianto *et al.*, 2021; Boeckx *et al.*, 2025).

The remainder of the paper is organized as follows. Section 2 presents the methodological framework of the study and is divided up into four parts. First, section 2.1 expounds the nonlinear model of idiosyncratic inflation dynamics. Second, section 2.2 explains how the persistence of deviations from international inflation are measured. Third, section 2.3 shows how the link between i) international inflation comovements, ii) inflation gaps, and iii) idiosyncratic inflation persistence is examined. Fourth, in section 2.4, we outline the panel regression models employed for analyzing the correlates of i)-iii), and set forth some of the underlying mechanisms through which potential drivers can influence i)-iii). A brief overview of the data is given in section 3. In section 4, our empirical findings are discussed. Finally, we conclude in section 5.

2 Methodological Framework

2.1 The Model

Deviations from international inflation π^* for a given country i constitute the idiosyncratic component of domestic inflation π^i. Hence, $\pi^i - \pi^*$ is the idiosyncratic inflation gap. Defining $y_t^i = \pi_t^i - \pi_t^*$, we adopt the following exponential smooth transition autoregressive (ESTAR) model for the idiosyncratic inflation gap

$$\Delta y_t^i = \alpha_0^i + \sum_{j=1}^{m} \alpha_j^i D_{M(j)} + \phi^i y_{t-1}^i + \sum_{k=1}^{q^i} \beta_k^i \Delta y_{t-k}^i + \Big(\alpha_0^{i*} + \sum_{j=1}^{m} \alpha_j^{i*} D_{M(j)} + \phi^{i*} y_{t-1}^i + \sum_{k=1}^{q^i} \beta_k^{i*} \Delta y_{t-k}^i \Big) \tilde{F}(y_{t-d}^i; \tilde{\gamma}^i, \mu^i) + \varepsilon_t^i. \tag{1}$$

$D_{M(j)}$ is a month dummy that equals 1 for month j and 0 otherwise.[1] $q^i = p^i - 1$ is the lag length of the specification for country i where p^i is the order of the autoregressive (AR) process for that country. Omitting country superscript i for brevity, $\tilde{F}(y_{t-d}; \tilde{\gamma}, \mu) = 1 - \exp\left(-e^{\tilde{\gamma}} \frac{(y_{t-d}-\mu)^2}{\sigma_y^2}\right) \in [0, 1]$ is a continuous transition function that mediates the nonlinear dynamics of the inflation gap y around the long-run equilibrium gap μ. For most countries, we find $\mu \approx 0$ tends to hold. $\tilde{F}(.)$ thus allows larger deviations from international inflation to adjust at rates that are different to those of smaller gaps.

The impact of the transition function on inflation gap changes is evident from the effective summary adjustment coefficient for each (time) observation, namely $\phi + \phi^* \tilde{F}(.)$. In particular, adjustment at each observation depends on the transition variable y_{t-d} where d is the delay parameter that dictates the timing of the response to inflation deviations, and is influenced by factors such as price stickiness. For a given $\tilde{\gamma}$, as $|y_{t-d}|$ increases (decreases), $\tilde{F}(.) \to 1$ (0). $\tilde{\gamma} \in (-\infty, \infty)$ is the transformed "slope" or "smoothness" parameter $\gamma = \frac{e^{\tilde{\gamma}}}{\sigma_y^2} \in (0, \infty)$ which gauges the speed of transition between the extreme inner and outer regimes of the inflation gap series.[2] These extreme regimes correspond to the lower and upper bounds respectively of $\tilde{F}(.) \equiv F(.) \in [0, 1]$. The overall dynamics of the idiosyncratic inflation gap at any point in time can therefore be viewed as a weighted average of dynamics across the two extreme regimes i.e. $(1 - F(.))\mathbf{\Psi} + F(.)(\mathbf{\Psi} + \mathbf{\Psi}^*)$ where $\mathbf{\Psi}(\mathbf{\Psi}^*)$ is the vector of slope coefficients in the linear (nonlinear) component of equation (1).

Higher values of $\tilde{\gamma}$ imply faster transition between regimes. As $\tilde{\gamma} \to \infty$, $\gamma \to \infty$, and the exponential function approaches the indicator function $I(y_{t-d} = \mu)$. On the other hand, as $\tilde{\gamma} \to -\infty$, $\gamma \to 0$, and the ESTAR model in equation (1) reduces to a linear model. ε_t is a composite shock term that includes the various disturbances, across which we do not differentiate. If domestic inflation reverts to international inflation over time (or y reverts to μ), no shock should impart a permanent effect on $\{y_t\}$. Equation (1) is estimated for each country using nonlinear least squares.

[1] Monthly dummies are used to capture any seasonal effects.

[2] The transformation is performed by scaling the squared difference between the transition variable y_{t-d} and the threshold μ by the variance of y, σ_y^2. This makes $(y_{t-d} - \mu)^2$ scale-free. The transformation is necessary as numerical problems in the optimization algorithm can be caused by large values of γ in the original (non-transformed) transition function $F(y_{t-d}; \gamma, \mu) = 1 - e^{-\gamma(y_{t-d}-\mu)}$. The transformation produces a dampened parameter $\tilde{\gamma}$, given $\tilde{\gamma}$ is a logarithmic function of γ. This modification speeds up convergence of parameters in estimation, thereby alleviating numerical issues in optimization.

2.2 Measures of Persistence

If we use φ_s to denote the slope coefficients in the original linear AR(p) model, then a succinct measure of persistence in the idiosyncratic inflation gap around the local neighborhood of the extreme inner regime ($F(.) \approx 0$) in equation (1) is given by $1 + \phi = \sum_s \varphi_s$. Correspondingly, an approximate summary gauge of persistence in the local neighborhood of the extreme outer regime ($F(.) \approx 1$) is given by $1 + \phi + \phi^* = \sum_s(\varphi_s + \varphi_s^*)$. More generally, inertia at any point in time is given by a weighted average of persistence levels across the two extreme regimes, namely by $(1+\phi)(1-F(.)) + (1+\phi+\phi^*)F(.) = 1+\phi+\phi^* F(.)$. Higher (lower) values of $|1+\phi+\phi^* F(.)|$ indicate greater (weaker) inertia or slower (faster) mean reversion in $\{y_t\}$. The fundamental idea underlying the ESTAR model in our context is that larger deviations of domestic inflation from international inflation should dissipate faster than smaller ones. This implies that, while $\phi \geq 0$ is permissible, $\phi^* < 0$ must hold such that the entire y_t series is globally stationary with $-2 < \phi + \phi^* < 0$. Thus, $\{y_t\}$ may be highly persistent, follow a random walk, or even exhibit explosive dynamics for adequately small disequilibria between π and π^* or deviations of y from μ.

We employ the concept of the half-life as our measure of persistence. It is defined as the number of periods (in our case months) required for a unit impulse to permanently dissipate by 50 percent from the occurrence of the initial shock. For a given set of model parameter estimates, the half-life for the ESTAR specification is obtained conditional on the transition function, and in particular on the transition variable, as follows

$$\hat{hl}_{t|y_{t-d}} = \frac{\ln(0.5)}{\ln(|1+\hat{\phi}+\hat{\phi}^* F(y_{t-d};\hat{\tilde{\gamma}},\hat{\mu})|)}. \tag{2}$$

Half-lives are computed for the 99^{th} percentile, 50^{th} percentile, mean, and 10^{th} percentile of the transition function, $F(.)$. That is, rates of persistence are estimated for large, moderate, and small idiosyncratic inflation gaps.

Although the inertia measure in equation (2) has the advantage of being directly comparable to those typically reported for linear AR models in the literature, it assumes a monotonic rate of decay which is not necessarily a characterisitic of higher-order dynamic models (Cheung and Lai, 2000). In the case of the latter, it is advisable to also calculate the half-life directly from the impulse response function (IRF). However, estimating IRFs for nonlinear models introduces special issues in terms of both interpretation and computation (Gallant *et al.*, 1993; Koop *et al.*, 1996). In the nonlinear framework, the shape of the IRF is not independent of i) the history of the system at the time of the shock, ii) the size of the shock, or iii) the distribution of future exogenous innovations. For given shock sizes and initial conditions (history), precise estimates can be attained only by multiple integration of the nonlinear function with respect to the distributions of future innovations. The problem is that such an approach is computationally impractical with long forecast horizons. Therefore, we construct the IRF, conditional on the initial equilibrium inflation gap or on the average initial history, using Monte Carlo integration methods instead. With a large number of dynamic stochastic simulations, the law of large numbers implies that this procedure yields results that are almost identical to those from the exact response functions derived analytically by multiple integration.

The nonlinear setting gives rise to the generalized impulse response function (GIRF)

$$GIRF_y(h,\delta,\omega_{t-1}) = \mathbb{E}[y_{t+h}|\varepsilon_s = \epsilon_s + \delta, \omega_{t-1}] - \mathbb{E}[y_{t+h}|\varepsilon_t = \epsilon_t, \omega_{t-1}], \tag{3}$$

where $\delta > 0$ for $s = t$ and $\delta = 0$ for $s > t$. Adopting the Monte Carlo methodology, given the (average) history of the series up to time t, ω_{t-1}, the path for y_{t+h} is projected in the cases of i) an additional arbitrary shock of percentage point size $\delta \in \{0.01, 0.005, 0.001\}$ at time t and ii) no shock to innovations $\{\varepsilon_t\}$. ϵ_t is drawn from a vector of Gaussian innovations with a covariance matrix equal to that of estimated residuals $\hat{\varepsilon}_t$. The same draw of ϵ_t is used in i) and ii). Shocks in intermediate periods as well as the effects of innovations ϵ_t and ϵ_{t+h} are averaged out, thus isolating the impact of δ on the inflation gap h months ahead. The GIRF can be viewed as the change in the forecast of y_{t+h} at time t relative to time $t-1$ given the occurrence of a perturbation δ to the innovation ε at time t. As the GIRF is a function of δ and ω_{t-1}, which are realizations of the random variables ϵ_t and Ω_t, the GIRF in equation (3) is itself a realization of a random variable. The half-life of the shock δ, $hl(\delta)$, is retrieved from the GIRF by counting the number of months required for the GIRF to fall permanently below $\frac{\delta}{2}$.

2.3 Link Between Inflation Comovements, Gaps, and Persistence

Along the intertemporal dimension for each country and the cross-section[3], we provide direct empirical evidence on the connection between i) international inflation comovements, ii) inflation gaps, and iii) idiosyncratic inflation persistence. The first series i) for a given country is measured by the correlation between domestic inflation and international inflation $\rho_t^{\pi^i,\pi^*}$. The

[3]Using average or median data.

second series ii) is gauged by the transition function $F_t^i(.)$ which offers a standardized measure of the absolute deviation of domestic inflation from the international trend $|\pi_t^i - \pi_t^*| \approx |(\pi_t^i - \pi_t^*) - \mu^i|$. The third series iii) is captured by the effective adjustment coefficient $\phi^i + \phi^{i*} F_t^i(.)$ where $1 + \phi^i + \phi^{i*} F_t^i(.)$ is the persistence of the corresponding inflation gap. The half-life, as defined in section 2.2, is also used as an indicator of iii) over the cross section.

At the theoretical level, it is not so obvious whether a higher correlation between domestic and international inflation rates should lead to smaller idiosyncratic inflation gaps. On the one hand, a stronger positive comovement can cause domestic and international inflation series to converge or align more closely together thereby diminishing the average inflation gap, with divergence occurring for lower correlations. On the other hand, a lower or negative correlation may yield convergence of the series to achieve a smaller divide if, for example, the series are trending in opposite directions prior to any intersection. The latter may arise in the case of emerging markets that are integrating into a currency union. Convergence may be toward a relatively steady international inflation rate thus resulting in lower correlations. A negative correlation may be consistent with a narrowing gap if the competitiveness position of a country is improving (deteriorating) relative to upward-trend (downward-trend) international inflation. This situation may have applied to certain peripheral euro area countries, which were experiencing real currency appreciation, and euro area core countries, which were observing real currency depreciation, in the lead up to the global financial crisis of 2007/08. In turn, if idiosyncratic inflation persistence is inversely related to the inflation gap for given adjustment coefficients $\{\phi^i, \phi^{i*}\}$, stronger or weaker international inflation comovements might produce higher inertia levels in idiosyncratic inflation. Smaller inflation gaps may be more difficult to arbitrage away, and thus associated with slower rates of adjustment, due to transportation costs, transaction fees in goods/services markets, financial market frictions etc.

2.4 Drivers of Inflation Comovements, Gaps, and Persistence

We investigate the drivers of international inflation comovements, inflation gaps, and idiosyncratic inflation persistence by estimating pooled panel regressions of the form

$$\zeta_{i,t} = \nu_t + \boldsymbol{\chi}' \mathbf{X}_{i,t-l} + \xi_{i,t} \tag{4}$$

where $\zeta_{i,t} \in \{\ln(\rho_{i,t}^{\pi^i,\pi^*}), \ln(F_{i,t}(.)), \ln(|1 + \phi_i + \phi_i^* F_{i,t}(.)|)\}$, ν_t are time dummies, and $\mathbf{X}$ is the vector of covariates including trade openness, financial openness, relative GDP, relative market capitalization, international reserves, nominal exchange rate rigidity, uncertainty, and geographical proximity to other countries. Except for exchange rate flexibility, covariates enter the equation in logarithmic form. In comparison to the fixed effects estimator which focuses on within-country variation, the pooled estimator exploits the full variation along all dimensions of the data. Along with pooled OLS, we estimate population-averaged panel regressions using the pooled feasible generalized least squares estimator where the error serial correlation structure is directly modeled.

For inflation gap regressions, noting that countries visit the extreme upper and lower bounds of $F(.)$, we also consider a logit model in which the dependent variable is defined as $\zeta_{i,t} = 1(0)$ if $F_{i,t} > (\leq) 0.5$. In the statistical form of this binary outcome model, the conditional probability is given by $p = P(\zeta = 1|\mathbf{x}) = e^{\mathbf{x}'\boldsymbol{\chi}}(1 + e^{\mathbf{x}'\boldsymbol{\chi}})^{-1}$.[4]

Regarding persistence, as inertia is jointly determined by adjustment coefficients $\{\phi, \phi^*\}$ and the inflation gap $F(.)$, we additionally consider the decomposition, analyzing how adjustment for a given inflation gap varies with $\mathbf{X}$. Let us assume that inflation gap dynamics are best described by a random walk process in the local neighborhood of μ, so that $\phi \approx 0$, while significant deviations from μ peter out over time with $\phi^* \in (-1, 0)$. In this case, Figure 1 illustrates how idiosyncratic inflation persistence (half-life measure in equation (2)) varies with i) gap size $F(.)$ for a given adjustment coefficient ϕ^* and ii) adjustment coefficient ϕ^* for a given inflation deviation $F(.)$.

For example, a more open economy may experience greater synchronization with international trends. If that leads to smaller departures from international inflation, Figure 1 indicates an increase in gap inertia via a movement up along a given curve. However, this increase in the half-life, linked to higher trade flows, is for a given set of market frictions as captured by ϕ^*. Greater economic openness can weaken the factors that limit profitable cross-border arbitrage opportunities, such as financial market frictions or information asymmetries. This has the effect of increasing a given inflation gap's speed of adjustment, implying a higher $|\phi^*|$ and downward shift of the curve in Figure 1. Thus, the net impact on the half-life is ambiguous whenever the gap and adjustment channels present opposing forces, ultimately depending on whether the *movement along the curve* or the *shift in the curve* dominates in the sample.

Broadly, the forces underlying international inflation comovements range from similar structural trends and policies to common (dis)inflationary shocks which are propagated across bor-

[4]The logistic regression of $\zeta \in \{0, 1\}$ on $\mathbf{x}$ uses maximum likelihood to estimate slope coefficients $\boldsymbol{\chi}$ corresponding to the equation $\ln(odds) \equiv \ln\left(\frac{p}{1-p}\right) = \boldsymbol{\chi}'\mathbf{x}$. The odds ratio between two outcomes as a result of a one-unit (one-percent) change in predictor x_j is thus e^{χ_j} ($e^{\chi_j \ln(1.01)}$) where x_j is in level (log) form.

ders via real and financial avenues. We next outline some of the channels and mechanisms through which our covariates can influence the aforementioned dependent variables.

2.4.1 Trade Openness

While, intuitively, one might anticipate that trade integration in goods and services leads to more synchronized business cycles and stronger inflation comovements through, for example, cross-border supply chains (Auer *et al.*, 2017, 2019, 2025; De Soyres and Franco, 2019), competition (Chen *et al.*, 2009; Auer *et al.*, 2013; Feenstra and Weinstein, 2017; Amiti *et al.*, 2020; Carluccio *et al.*, 2023), harmonized product standards (Schmidt and Steingress, 2022), and demand/income effects (Kose *et al.*, 2003; Lane, 2020), the impact in theory is somewhat ambiguous.

From a demand-side perspective, trade liberalization will partly dictate the fraction of spending allocated toward foreign goods and services. An expansionary phase at home can produce an increase in demand for imports, thus inducing a higher correlation with business cycles abroad. Stronger trade linkages may strenghten such spillover effects, resulting in more synchronized business cycles across countries. Importantly, local shocks to demand in one economy can be transmitted internationally through global value chains (GVCs) and the operations of multinational firms. Stronger cross-country trade ties mean that expenditure shifts in one market can generate stronger demand changes in upstream economies, with heightened GVC participation generating more synchronized inflation dynamics.

On the supply side, in the absence of significant cross-border "intermediate input"-output linkages over heterogeneous industries, deeper international trade integration may stimulate more pronounced inter-industry specialization in line with comparative advantage across countries. These specialization patterns produce differential wage dynamics across borders if labor intensities in production vary by industry. Sizable industry-specific shocks could therefore initiate a decoupling of national business cycles and corresponding inflation rates. An opposing force, however, is channeled through intra-industry trade. In this context, production specialization is curbed as home and foreign product varieties are imperfect substitutes. Such trade models emphasize cross-country similarities in output compositions, production structures, and factor endowments. Trade openness may, moreover, induce cross-border knowledge flows that enhance similarities in productivity dynamics across nations. Conversely, in the case of environments characterized by intra-industry trade, industry-specific developments will lead to more harmonized inflation dynamics internationally.

2.4.2 Financial Openness

The impact of higher international financial integration on cross-country inflation comovements is correspondingly equivocal from a theoretical standpoint. Firstly, international portfolio diversification produces wealth effects that can enhance business cycle comovements across economies via the demand side. Financial globalization may promote stronger contagion or spillover effects during crises, that act to produce more correlated disinflationary pressures. Greater access to international capital markets may also increase similarities in national output compositions if resources are deployed to sectors in which the source country has a comparative advantage.

On the other hand, external commercial borrowings and FDI for example may facilitate more pronounced output specialization patterns, while international investment portfolios enable consumption smoothing and international risk sharing without the need for diversified production. However, if tighter financial integration manages to sufficiently augment business cycle synchronization across nations, then it will limit opportunities for diversifying consumption risk. International capital markets may assist in the development of asymmetric business cycles by supplying national financial systems with excess leverage during expansions while more abruptly withdrawing funding during contractions, thereby amplifying and prolonging domestic credit cycles. Finally, financial openness can lead to divergent inflation trajectories across current account surplus and deficit countries if it accommodates greater inertia in such imbalances.

2.4.3 Economic Size

"Gravity"-type models in the international macro-finance literature suggest that economically larger countries exhibit more synchronized business cycles due to their stronger economic links (Galstyan and Velic, 2018; Curran and Velic, 2020). While the international trade literature predicts higher volumes of imports and exports in goods/services in such cases, national market size is also thought to covary positively with asset returns and the extent of cross-border asset holdings. Indeed, national stock market correlations are more likely amongst larger players, with corresponding stocks more likely to feature in international investment portfolios. From the lens of the supply side, theory indicates that equity returns are closely linked to the productivity of the real economy underpinning activity, where the trajectory of returns follows that of economic growth.[5] Additionally, the "financing" hypothesis based on Tobin's q theory offers

[5] Although, the relation may be undermined in the presence of more domestic multinationals that depend more on global income growth.

insight on the strength of the link between returns and growth. Specifically, the link is expected to be stronger for more developed national financial markets, as proxied by higher domestic market capitalization. Higher risk aversion toward smaller developing markets may, conversely, result in attenuated cross-country correlations in business cycles. It is also important to note that technological progress may not necessarily yield higher equity returns if competition drives proceeds to be distributed to consumers and labor.

2.4.4 International Reserves

Foreign exchange reserves can be used to protect domestic credit markets and exchange rates from adverse international shocks (Obstfeld *et al.*, 2010), especially during periods of global financial stress (Alberola *et al.*, 2016). They enable the country's position to remain in line with international trends (i.e. stronger correlation) or more detached from events, such as financial crises, elsewhere (i.e. weaker correlation). Reserve accumulation, however, can operate against its intended objective by prompting greater risk taking in the private sector. The latter could induce domestic volatility that decouples home and foreign markets, or intensifies cross-country links if accompanied by contagion in the region. But, reserve accumulation may diminish foreign interest rates, producing riskier behaviors abroad too and potential sources of international spillovers (Gerlach-Kristen *et al.*, 2016).

Chutasripanich and Yetman (2015) contend that policies aiming to limit exchange rate volatility can induce counterproductive speculation amongst risk-averse agents, while Caballero and Krishnamurthy (2004) claim that foreign exchange interventions restrict the development of home financial markets thereby resulting in an underinsurance of foreign currency risks. According to Burnside *et al.* (2004), twin banking-currency crises are caused by implicit guarantees to foreign creditors that promote unhedged foreign currency exposures and reneging upon currency devaluation amongst banks. Cook and Yetman (2012) on the other hand suggest that banks' equity prices become more insensitive to exchange rate fluctuations with international reserve accumulation.

2.4.5 Exchange Rate Regime

A fixed exchange rate regime can induce greater cross-country symmetries in business cycles as it implies equality between domestic and foreign interest rates (Obstfeld and Rogoff, 1996; Benigno *et al.*, 2007). Following foreign monetary policy offers scope for the elimination of destabilizing exchange rate shocks to tradables that may otherwise erode comovements with markets abroad.[6] A steadier nominal exchange rate also promotes cross-border investments by lowering transaction costs. The potential for more closely linked inflation paths across partner nations under pegging, additionally, enhances the likelihood of convergence in corresponding real risk-free rates. At the same time, pegs may act to internationally propogate crises originating in base countries (Lane and Milesi-Ferretti, 2012; Kim and Pyun, 2018). Emphasizing the policy trilemma, Kim and Pyun (2018) report that countries characterized by fixed exchange rate regimes and high capital account openness had business cycles that were more synchronized with those of the U.S. during the GFC period.

More variable nominal exchange rates, conversely, may generate greater uncertainty and thus price stickiness (Delgado, 1991).[7] Flexible exchange rates can reduce the domestic impact of foreign real shocks, acting in the direction of decoupling business cycles across nations. Although floating exchange rates provide domestic interest rates with a bulwark against foreign ones (Obstfeld *et al.*, 2004, 2005), it is not obvious that this insulation also applies more generally to risk appetites and premia (Rey, 2013). Adopting the contagion explanation of asset price movements (King and Wadhwani, 1990), however, the likelihood of stronger international business cycles rises in the presence of more volatile currency markets. Cross-border transmissions rise in this case due to herd behavior or noise trading, linked to notable differences in forecasts of fundamentals that push investors to look to foreign asset prices as a signal of likely developments at home. Credibly fixed exchange rates under this paradigm would act to curtail uncertainty about fundamentals, making contagion effects less probable and international correlations weaker.

2.4.6 Uncertainty

Ahir *et al.* (2022) highlight that increases in a country's level of uncertainty, capturing both economic and political developments over short and long term horizons, tend to foreshadow significant declines in national output.[8] If an uncertainty shock is confined to a particular country, then it can weaken domestic comovements with foreign business cycles and inflation trends. Conversely, if it engenders spillover effects beyond the country's borders, it can raise

[6]Pegging the domestic interest rate to the foreign one is insufficient for achieving a fixed exchange rate in all periods. In fact, it leads to exchange rate indeterminacy, and plausibly that of the real economy, in the given arrangement. According to Obstfeld and Rogoff (1996), determining the level of the nominal exchange rate requires interest rate pegging combined with the specification of at least one point in the money supply path.

[7]This is in contrast to Cashin and McDermott (2006) whose findings suggest that greater nominal exchange rate flexibility spurs more frequent adjustment of goods prices.

[8]The link is more pronounced in countries with lower institutional quality and higher external financial dependence.

cross-country correlations e.g. 2007/08 global financial crisis and subsequent 2009 trade collapse. Episodes with far-reaching effects, such as Brexit, the U.S. presidential elections, and European sovereign debt crisis, however, may also weaken cross-border economic ties and drive de-globalization e.g. through protectionist and fiscal reform measures. Synchronized uncertainty spikes are more likely for shocks that originate in systemically important economies, or when countries are characterized by tighter trade and financial linkages. As uncertainty is associated with greater stock market volatility and forecaster disagreement (Ahir *et al.*, 2022), it can delay adjustments in cross-border price differentials as consumers and firms hold-off on consumption and investment decisions.

2.4.7 Geographical Distance

Lower correlations in price dynamics across countries, and slower adjustments in corresponding inflation differentials, may be associated with transaction fees, transportation costs, informational frictions or familiarity bias (Dumas, 1992; Alba and Papell, 2007). Some of these factors can also negatively affect expected effective asset returns abroad, thereby weakening holdings of these assets in international portfolios and, in turn, cross-country ties in financial markets (Baltzer *et al.*, 2013). Geographical proximity is often used as a proxy for the aforementioned factors. Thus, countries or regions that are further apart should see less correlated inflation dynamics and business cycles. In contrast, the international diversification motive, if proxied by geographical proximity, implies that more distant countries receive higher weights in investment portfolios, leading to stronger comovements across national markets. Lastly, countries that are geographically closer to each other are more likely to follow similar monetary policies, resulting in similar interest and inflation rates across these economies.

3 Data

Employing monthly data on harmonized indexes of consumer prices (HICP) from Eurostat, we construct month-on-month inflation rates for 38 countries over the period 1996:02-2024:03. Our country sample comprises 32 advanced and 6 emerging markets.[9] We focus on higher

[9] *Advanced Economies*: Austria (AT), Belgium (BE), Bulgaria (BG), Croatia (HR), Cyprus (CY), Czechia (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (EL), Hungary (HU), Iceland (IS), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Romania (RO), Slovakia (SK), Slovenia (SI), Spain (ES), Sweden (SE), Switzerland (CH), United Kingdom (UK), United States (US). *Emerging Economies*: Albania (AL), Kosovo (XK), Montenegro (ME), North Macedonia (MK), Serbia (RS), Turkey (TR).

frequency, month-on-month, price growth data in order to avoid the temporal aggregation bias issues highlighted in the literature (Paya *et al.*, 2007; Savat, 2022).[10] Following Ciccarelli and Mojon (2010) and Gerlach and Stuart (2024), international inflation is captured by the cross-country median rate of inflation at each point in time.[11]

Equation (4) employs data at the annual frequency level, given data availability across covariates. Turning to vector **X**, trade openness is defined as the sum of imports and exports of goods and services divided by GDP and is sourced from the World Bank's World Development Indicators (WB's WDI). Financial openness is captured by the updated Chinn-Ito index which is based on the binary variables that codify the restrictions on cross-border financial transactions given in the IMF's "Annual Report on Exchange Arrangements and Exchange Restrictions" (AREAER). Besides this de jure measure, a de facto volume-based measure of international financial integration can be considered using the updated External Wealth of Nations (EWN) data of Lane and Milesi-Ferretti (2007, 2018). This is defined as the sum of total external assets and liabilities scaled by GDP, and produces the same findings. Economic size is reflected in a country's shares of GDP and market capitalization in the sample, with underlying data drawn from WB's WDI. International reserves are obtained from EWN.

Nominal exchange rate rigidity is a dichotomous variable that equals unity for fixed exchange rate regimes and zero otherwise. The corresponding data are retrieved from the revised repository of Ilzetzki *et al.* (2019, 2022). We define exchange rate arrangements with fine classification codes 1-8 (or coarse classification codes 1-2), ranging from no separate legal tender and currency boards to de facto crawling bands narrower than or equal to ±2%, as fixed exchange rate regimes. Based on the original monthly data, each year is allocated the coarse code appearing most frequently during the year. The same conclusions from regressions may be reached under the annual exchange rate stability index of Aizenman *et al.* (2010). Uncertainty is gauged by the world uncertainty index of Ahir *et al.* (2022), where we average quarterly data to obtain annual figures. Lastly, a country's average or median geographical distance (in kilometers) from other countries in the sample is calculated using the CEPII Distances dataset, which provides distances between capitals as well as proximity measures based on population-weighted inter-city distances.

[10] In particular, moving from monthly to quarterly to annual data tends to bias inflation persistence upward. This is true regardless of whether one is examining monthly rolling average inflation over the specified interval or year-on-year (quarter-on-quarter) inflation changes each month.

[11] Alternative measures of international inflation such as cross-country average inflation, Eurostat aggregate index based inflation (euro area and EU indexes included), the common single factor in factor models, and the first principal component of domestic inflation rates lead to the same results.

4 Empirical Results

4.1 Some Preliminary Findings

Table 1 presents the full sample period correlation between domestic and international inflation for each country i, ρ^{π^i,π^*}. Although they may mask significant heterogeneity over sub-intervals, the Pearson correlation coefficients across countries are positive and generally quite strong, indicating that domestic inflation tends to closely follow international inflation. Squaring these raw bivariate correlations yields the R-squared from a simple linear regression of domestic inflation on international inflation, which may be interpreted as a rudimentary gauge of the relevance of international trends in national inflation dynamics. In particular, the median R-squared (ρ^{π^i,π^*}) over the cross-section stands around 0.36 (0.6).

Table 2 provides some initial evidence of asymmetric adjustment and volatility in idiosyncratic inflation gaps over regimes of high and low inflation deviations. The upper (lower) regime for a given country i is characterized by absolute idiosyncratic inflation gaps at time $t-1$, $|\pi^i_{t-1} - \pi^*_{t-1}|$, that are higher than (less than or equal to) the average absolute deviation, $\tau^i = \overline{|\pi^i_t - \pi^*_t|}$. For each inflation regime of a given country i, we compute the average absolute monthly change in domestic inflation, $\overline{|\Delta\pi^i_t|}$, and the variance of these domestic inflation changes, $\sigma^{\Delta\pi^i_t}$. We find that each country exhibits notably greater adjustment and volatility in national inflation when its inflation gap is higher than average in the previous period. In about half of the cases, the figures for the high inflation gap regime are around twice that of the lower regime or more. This might suggest that international inflation exerts a markedly stronger force on domestic inflation dynamics in the presence of larger inflation deviations. We investigate this possibility in a more rigorous manner in the next section.

4.2 Nonlinear Inflation Gap Dynamics

Table 3 gives the estimates for the ESTAR model shown in equation (1). Prior to the application of this framework to a country's inflation gap series, tests of linearity versus smooth transition type nonlinearities on $\{y^i_t\}$ were conducted à la Teräsvirta (1994). The test entails taking a Taylor series approximation of the transition function $F(.)$ and testing the significance of the nonlinear terms. For each country, this test indicated a rejection of the null hypothesis of linearity in favor of a STAR model at the 1 percent statistical significance level. These results fall in line with the transition parameter estimates displayed in column (4) of Table 3, which imply that $\gamma^i > 0\ \forall i$. Furthermore, the selected delay parameter values d^i, given in the middle graphs of Figure 2, tend to minimize the p-values of linearity tests in addition to producing the highest speeds of convergence in ESTAR parameter estimates.

We also inspect a battery of unit root tests before estimating equation (1), including augmented Dickey-Fuller, Phillips-Perron, DFGLS, KPSS, and Kapetanios *et al.* (2003) tests of non-stationarity against ESTAR global stationarity. All of these tests indicate stationary inflation gap dynamics.[12] Finally, to determine the lag lengths q^i, the sequential paring down technique of Campbell and Perron (1991) is employed, as well as Akaike and Schwarz-Bayesian information criteria.

As estimation of the ESTAR model reveals that the inner regime exhibits non-stationary behavior across all countries, we adopt more parsimonious specifications in which ϕ^i is set equal to 0 $\forall i$. Thus, any equilibrium-reverting dynamics in the inflation gap will be fully captured by $\phi^* F(.)$. From columns (2) and (3) of Table 3, we can see that the convergence criterion $-2 < \phi^* < 0$ is satisfied for each country. In particular, excluding Cyprus, $\phi^* \in (-1, 0)$ for all countries, where adjustment toward equilibrium μ for a given inflation gap $F(.)$ speeds up with lower values of ϕ^* within the aforementioned interval.

Countries, moreover, that display a higher $\tilde{\gamma}$ in column (4) transition faster across inflation gap regimes. This is clearly evident from plots of the transition function $F(.)$ against transition variable y_{t-d} across nations, as depicted by the graphs positioned down the middle in Figures 2-3. They illustrate that countries with higher $\tilde{\gamma}$ estimates have steeper transition functions, such that movements between higher and lower regimes of inflation deviations are easier. This means that an inflation discrepancy, y_t^i, generally dissipates faster for a given ϕ^{*i} when $\tilde{\gamma}^i$ is larger. Put differently, to compensate for a flatter transition function, ϕ^* would need to be lower in order to induce swifter movement through the "continuum" of regimes in $F(.) \in (0, 1)$, each of which is associated with the effective adjustment coefficient $\phi^* F(.)$. As a standardized gauge of the gap, $F(.)$ internalizes the shape or path of transitions so that effective adjustment is just a function of two components, namely the adjustment coefficient ϕ^* along the path and standardized absolute inflation gap $F(.)$.

Column (5) shows the estimated location parameters μ^i, which indicate that equilibrium departures from international inflation across countries are either zero (28/38 cases) or very close to zero. Our results, overall, suggest that international inflation imparts a durable gravitational pull on national inflation. Using equation (2), columns (6)-(9) of Table 3 provide direct evidence on the persistence of idiosyncratic inflation gaps of disparate sizes. For large

[12]Results available upon request.

inflation gaps as measured by the 99^{th} percentile of $F(.)$, the computed half-life of deviations (column (6)) ranges from around 1 week for the Netherlands, Italy, North Macedonia, Croatia, Luxembourg, and Belgium to 3.5 months for Turkey, with the full sample cross-country average/median falling short of a full month. As column (6) shows, the half-life exceeds 1 (2) month(s) for only 13 (4) countries. For inflation gaps of moderate size as gauged by the median or mean of $F(.)$, half-lives generally increase but continue to be quite low (columns (7) and (9)), falling below 2 months for 27 countries and standing on average at about 1.5 months.

At the 10^{th} percentile of $F(.)$, the cross-country median (mean) half-life is 18 (37) months, indicating that much more time is required for a very small divergence in inflation to peter out (column (8)). Our estimates highlight that countries characterized by higher levels of inertia in inflation gaps, such as Hungary and Lithuania, jointly carried a high ϕ^* (slow adjustment) and low $\tilde{\gamma}$ (flat transition function). GIRF half-lives conditional on equilibrium or history yield very similar patterns. In particular, shocks of 1 and 0.5 percentage points are typically associated with half-lives of less than 1 month, while small shocks of 0.1 percentage points generate half-lives of 12-18 months on average across countries.

Taken together, our findings bear some resemblance to the “opportunistic approach to disinflation” in the sense that corrections to inflation are more aggressive when it is further away from its target. In Figure 4(a), we find that this relation also holds quite strongly over the cross section of countries. As the graph illustrates, countries that exhibited smaller inflation gaps on average also observed slower average effective rates of adjustment. Compared to countries like Hungary which spent much of their time in the local neighborhood of μ, plots of the transition function over time in the right-hand side graphs of Figures 2-3 show that countries like North Macedonia spent more time in the outer inflation regimes ($F(.) > 0.5$) and so had faster rates of adjustment on average.

4.3 Triad Explained: Inflation Comovements, Gaps, and Inertia

Following up on section 4.1, the left-hand side graphs in Figures 2-3 delve deeper into the comovements between domestic and international inflation by plotting monthly-rolling 4-year correlations between the two aforementioned variables for each country. The red (blue) long-dash (short-dash) reference line in these graphs marks the average (median) 4-year correlation coefficient over the full time interval of the country. The graphs suggest that average and median time-varying correlations are mostly quite strong across countries, remaining broadly in line with the full time sample correlations reported in Table 1.

However, we observe significant heterogeneity in comovements over time for each country. One notable feature that emerges from the plots is the upward trend in comovements in the lead up to the GFC of 2007/08 for most nations, in tune with the deepening international economic integration observed since the 1970s (Lane and Milesi-Ferretti, 2007). Post GFC, some reversal of these comovements is found, in step with the unwinding of current account imbalances during the external adjustment phase (Lane and Milesi-Ferretti, 2012, 2015) which included the capital market fragmentation effects of the European sovereign debt crisis (Beck *et al.*, 2016; Kräussl *et al.*, 2016; McQuade and Schmitz, 2017). Failing to fully recover, global capital flows relative to world GDP have been stuck at levels well below their pre-GFC peak, partly due to persistently higher levels of risk aversion, government bailouts, and the adoption of macroprudential policies that restrain capital inflows.

Signs of decoupling, more recently, have also coincided with the negative trade and financial market effects of Brexit (de Lucio *et al.*, 2024), Trump 1.0 (Evenett and Fernando, 2025), and Covid-induced supply chain disruptions and demand contractions (Antràs, 2020; Hayakawa and Mukunoki, 2021). Lane (2020) adds that, in environments characterized by higher levels of economic globalization, divergent inflationary pressures can be quite pronounced during adjustment phases. Specifically, re-allocation shocks may produce expansions and contractions of varying industries across different regions, resulting in disparate cross-country wage dynamics, conditional on the level and composition of labor demands. Finally, there is evidence at the end of the intervals for some countries that the Ukraine-Russia war had a positive impact on international inflation correlations (through energy and food prices).

Regarding the evolution of standardized absolute inflation gaps, we can see from the third graph of each country in Figures 2-3 that countries visit both the extreme inner and outer inflation regimes, $F(.) = 0$ and $F(.) = 1$, respectively over time. More generally, countries spend a considerable amount of time in each of low and high inflation gap regimes $F(.) \leq 0.5$ and $F(.) > 0.5$. The thick red series give the 12-month moving average transition functions, providing insight into the general direction of inflation gaps over the sample period. For each country, the correlation between the international inflation comovement (left-hand side graphs) and moving average transition function (right-hand side graphs), η, is reported in Figures 2-3. The estimated coefficients invariably point to a statistically significant inverse link.[13] Thus, rising comovements with international inflation imply smaller deviations from international inflation, which, as discussed, have a tendency to be more persistent.

[13]The same applies when the non-“moving average” transition function series in black are used.

Taking Austria in Figure 2(a) for example, one can observe that the inflation gap generally declines as the positive nexus between national and international inflation strengthens in the lead up to the GFC. Thereafter, we find, predominantly, that the inflation deviation grows in tandem with Austria's weakening international inflation comovement. Belgium, Cyprus, France, Ireland, Italy, Luxembourg, Norway, Slovenia, Sweden, Spain, and Portugal are some other countries that display these particular patterns in Figure 2. Bulgaria and Croatia in Figures 2(c) and 2(d), on the other hand, see some decline in inflation gaps in later phases after the GFC in line with sustained inflation comovement increases in the run up to euro adoption. The process for joining ERM II for both countries began in 2017. As a further illustration, similar convergence in inflation rates is evident for Latvia (Fig. 2(q)) and Lithuania (Fig. 2(r)) in preparation for euro adoption in 2014 and 2015, respectively.

Many of the emerging markets in Figure 3, which are in different stages of the EU accession process, have seen a very steep increase in the synchronicity of domestic inflation fluctuations with international changes in the decade from 2014-2016. These developments have been coupled with some notable drops in inflation gaps, likely in a fashion commensurate with the implementation of convergence criteria. For example, since commencing its formal negotiations for EU accession in 2014, Serbia's international inflation correlation has increased remarkably from around 0.15 to just above 0.70, while the value of its transition function was halved in the same period from around 0.80 to just below 0.40. For reference in Figure 2, although of lower magnitude, similar patterns can be detected for the last countries to enter the EU, namely, Croatia in 2013 and Bulgaria & Romania in 2007.

We also find evidence of the inverse link between international inflation correlations and inflation gaps along the cross section, as depicted in Figure 4(b). We find in the graph that countries such as Denmark and France whose inflation correlations were typically high over the period averaged smaller inflation gaps. At the other end of the spectrum, we see a number of central and south-eastern European countries like Albania, Kosovo, and Romania. As clear from Figures 2(y) and 3(a)-3(b), while these countries have seen increasing international inflation comovements over time and corresponding sustained decreases in inflation gaps, the inflation correlations have been relatively low and gaps relatively high ($F(.) > 0.5$) most of the time. For example, Albania's international inflation coerrelation coefficient does not hit 0.4 until the very end of the sample, only becoming positive in 2020, with the 12-month moving average transition function falling below 0.5 only toward the end of the sample period.

In Figure 5, we offer cross-section evidence of a positive association between international inflation correlations and idiosyncratic inflation persistence (i.e. gap inertia). To measure the pace of reversion to international inflation, the graphs on the left ((a), (c), (e)) use the effective inflation adjustment coefficient while those on the right ((b), (d), (f)) use the half-life of deviations. Both are calculated for average or median standardized absolute inflation gaps $F(.)$ and plotted against average or median 4-year international inflation correlations. As higher inflation correlations tend to be tied to smaller inflation gaps, one would expect, ceteris paribus, for them to be also related to more persistent inflation deviations. Indeed, we see significant signs of the latter in Figure 5.

Low average inflation correlation countries like Albania, Kosovo, and Czechia are characterized by a faster pace of inflation adjustment (lower $\phi^* F(.)$), or lower half-lives, at typical inflation gap sizes over the period. High average inflation correlation countries like France and Denmark, meanwhile, feature much slower rates of adjustment and higher half-lives as their typical inflation gaps are smaller. Additionally, in unreported checks, we see these patterns at other percentiles of the transition function, above and below the median. At first glance, a positive link between idiosyncratic inflation inertia and international inflation comovements may appear counterintuitive. However, the key to rationalizing the finding is the recognition of two crucial ingredients: i) the nonlinear nature of idiosyncratic inflation adjustments over different inflation gap sizes and ii) the negative nexus between international inflation correlations and deviations from international inflation.

4.4 Triad Components and Covariates

In this section, we examine some of the potential drivers of international inflation comovements, inflation deviations, and idiosyncratic inflation persistence in individual panel regressions. The equation-by-equation estimation approach is equivalent to a seemingly unrelated regressions (SUR) approach when the covariates considered in the cases of comovements, deviations, and persistence are the same. In the presence of some small differences in the nests of covariates employed across regressions, we find no significant efficiency gains from SUR which produces almost identical estimates.[14] We expect a driver's effects on the aforementioned three dimensions of inflation dynamics to be related in a manner consistent with the triad links established in section 4.3.

Linear panel regression results for international inflation comovements, inflation gaps, and

[14]Due to the similarity of regressor sets ($\mathbf{X}$) across the three equations, cross-equation correlations in residuals are minuscule and there are no discernible significant disparities in root mean square errors (RMSEs) across approaches. In fact RMSEs tend to be marginally lower in the equation-by-equation approach.

idiosyncratic inflation persistence in line with equation (4) are reported in Tables 4, 5, and 8 respectively. For inflation gaps, as discussed in section 2.4, logit panel regression estimates are additionally provided in Table 6. Using the estimated log odds changes, square bracket figures in panel A of the table give odds ratios for +10% changes in regressors (except dummies). Panel B meanwhile computes marginal effects at means of regressors. As also highlighted in section 2.4, we complete the decomposition of persistence by analyzing the association between drivers and inflation adjustment while holding inflation gaps constant. The corresponding cross-section results are provided in Table 7, before the net effects on persistence in Table 8. In Tables 4-6 and 8, columns (1)-(4) display pooled panel estimates while columns (5)-(8) give population-averaged panel estimates with specified error correlation structures.

On average across regressions, R-squared values suggest that our covariates capture around 30% of the variation in inflation comovements in Table 4, around 33% of the variation in inflation gaps in Table 5, and around 30% of fluctuations in persistence rates in Table 8. Population-averaged panel regressions generally produce higher explanatory power, showing R-squareds of about 40% – 60% in many cases. Low pseudo R-squareds in logistic regressions are typical in the literature, and this is no different in Table 6. Their values of approximately 0.10 are acceptable, especially when the statistical significance of parameter estimates is taken into account. The last six rows of Tables 4-5 and 8 indicate that regression residuals across the board do not suffer from cross-sectional dependence or non-stationarity.

Following up on the discussions in sections 2.4.1 and 2.4.2, we find that higher trade or financial openness is generally associated with higher international inflation comovements, lower inflation gaps, and higher idiosyncratic inflation persistence. First, while trade openness exhibits a statistically insignificant link with international inflation correlations in Table 4, a 10% increase in financial openness is roughly associated with a 2.5% increase in the "domestic-international" inflation correlation.

Second, Table 5 suggests that higher levels of openness are uniformly tied to smaller deviations from international inflation across columns (1)-(8) based on coefficient values alone, with statistical significance retrieved for both openness variables in column (4). In particular, column (4) indicates that a 10% increase in trade and financial openness variables produces approximately −6 and −2.5 percent changes in inflation gaps. Examining the panel logit models in Table 6, evidence in favor of a negative link is even stronger. For both openness variables across all specifications, panel A shows statistically significant negative effects on log odds and below-unity odds ratios for +10% changes in regressors (in square brackets), while panel B reports significantly negative marginal effects. From panel A, we estimate that the odds of a relatively large inflation gap fall by 6% on average across columns when trade openness rises by 10%. Panel B meanwhile points to a 1.5 percentage point decrease in the probability of a high inflation gap for the same change in trade openness. In the case of financial openness, typically, the odds of a larger inflation deviation decline by 9% and the marginal effect is −2.2 percentage points.[15] The conclusions for openness based on results in Tables 4-6 make sense given that we find an inverse relation between inflation correlations and gaps, as explained in section 4.3.

Third, turning attention to Table 8, estimates overwhelmingly imply a positive relation between idiosyncratic inflation persistence and the openness variables. Namely, a 10% increase in trade (financial) openness yields a 2% (2.5%) increase in inflation gap inertia. This again makes sense in the context of our findings from sections 4.2-4.3, as smaller inflation deviations, which is what openness prompts, should produce more persistent gaps ceteris paribus. However, effective inflation adjustment depends not just on inflation gaps $F(.)$, but also on the adjustment coefficient ϕ^* which may too covary with openness. Greater trade flows might result in arbitrage opportunities being exploited more frequently, and thus a higher absolute adjustment coefficient $|\phi^*| \in (0,1)$, which, as noted, is positively linked to the rate at which a given inflation gap dissipates over time. Table 7 indeed suggests that both openness variables are associated with more negative values of $\phi^* \in (-1,0)$ over the cross section, and so lower gap persistence from this angle alone. What Table 8 implies is that the positive effects of openness on persistence through $F(.)$ dominate the negative effects of openness on persistence through ϕ^*, such that the net effect on inertia is positive.

In relation to section 2.4.3, we find collective evidence that economic size indicators, relative GDP and market capitalization, covary positively with international inflation comovements (Table 4) and negatively with inflation deviations (Table 5-6). While larger economic size implies higher inflation gap persistence via its impact on $F(.)$, Table 8 indicates that its net impact on inertia is negative. The latter implies that the rate of adjustment $|\phi^*|$ must be larger for countries of larger economic size, as suggested by Table 7, with the negative effects on ϕ^* more than offsetting the positive impact on inertia through gap size $F(.)$. Economic size can reflect general development trends. More developed nations may be characterized by lower, more stable rates of inflation with well anchored expectations as a result of more credible,

[15] Applying the marginal effect to sample average $\zeta \in \{0,1\}$, re-calculating the average odds $\frac{p}{1-p}$, and lastly calculating the percentage change in odds approximately yields the percentage change implied by our odds ratio in square brackets.

higher-quality national institutions. This can lead to more synchronized inflation comovements with the rest of the developed world (and smaller $F(.)$). At the same time, traders may place higher weights on larger economies in portfolios, thereby leading to faster adjustment of a given inflation gap for those markets (lower $\phi^* \in (-1, 0)$).

Although comovement regressions do not indicate a significant role for reserves, we find a stable inverse relation between international reserves and inflation deviations in logit models (Table 6). Thus reserves can safeguard an economy from notable departures from steady international trends, by providing a buffer against speculative attacks. Tables 7-8 unequivocally indicate that reserves increase the persistence of inflation gaps by maintaining a closer alignment of domestic and international inflation rates (lower $F(.)$), and attenuating the size of gap changes (lower $|\phi^*|$).

Exchange rate rigidity has an average coefficient of 0.30 across columns (1)-(8) in Table 4, implying that a fixed exchange rate regime is associated with a 35% increase in international inflation correlations. Table 5 meanwhile shows the inflation gap declining by 35% on average in the presence of fixed exchange rate arrangements. In the logit framework, Table 6 points to an average drop of 43% in the odds of a relatively large inflation gap when the exchange rate regime is fixed, and a typical marginal effect of −12 percentage points on the probability of a large gap. In reverse, the odds are 75% higher for more flexible regimes compared to those of fixed regimes. The cross-section correlation in Table 7 stresses an inverse link between nominal exchange rate rigidity and adjustment coefficient $\phi^* \in (-1, 0)$, a relation which also holds with the exchange rate stability index of Aizenman *et al.* (2010). This is the force that ultimately dominates in Table 8, where we find exchange rate rigidity exerting an average net effect of around −34% on idiosyncratic inflation persistence. Under such exchange rate arrangements, at all gap sizes, domestic inflation is likely to adjust more swiftly in pursuit of foreign rates, hence reinforcing narrow inflation gaps.

Table 4 offers evidence that countries lying closer, on average, to all others in the sample display stronger correlations with international inflation. Tables 5-6 in turn support the implication that geographical proximity should then also signal smaller deviations from international inflation patterns. For example, Table 6 shows that geographical distance between countries is positively associated with the log odds of relatively large inflation gaps. Columns (1)-(4) in particular suggest that the odds of a larger inflation deviation $\frac{p}{1-p}$ are multiplied by an average factor of 1.07 when distance increases by 10%. In other words, the average odds ratio implies that the odds increase by 7%. Corresponding marginal effects (i.e. on $p = Pr[\zeta = 1|\mathbf{x}]$) are typically to the tune of +1.5 percentage points for the same increase in distance. Focusing on Tables 7-8, we can infer that distance increases the persistence of inflation gaps by reducing the speed of adjustment $|\phi^*|$. While the impact on $F(.)$ implies a decline in inertia, this is more than counter-balanced by the impact on ϕ^* for a given gap, thus resulting in a positive net effect on idiosyncratic inflation persistence with increases of around 0.5% for every 1% increase in distance. In Figure 1, this amounts to the upward shift in the curve imparting a stronger effect than that of the downward movement along the curve.

Intuitively, similarities in monetary policies, greater information flows, and local-neighborhood bias amongst countries in geographical clusters imply that more distant, less synchronized countries perhaps provide good diversification or hedging opportunities if higher transaction costs can be overcome. Wider economic integration, however, can attenuate such investment opportunities by linking interest rate, financial, and business cycles across regions. In contrast, it may also reduce the associated transaction costs by minimizing regulatory differences. We find that the distance effect survives and continues to play an important role in understanding inflation comovements, gaps, and inertia even when we control for a number of macroeconomic factors.

When we add uncertainty to our set of regressors in Table 4, we find that it covaries positively with international inflation comovements. This is suggestive of cross-border spillover effects, emanating from either home or foreign markets, that to some degree bind national business cycles and induce inflation synchronization. Such contagion can narrow cross-country inflation gaps. Table 5 correspondingly presents evidence of an inverse relation between the inflation gap and uncertainty. In addition to smaller inflation deviations being more persistent, Table 7 emphasizes that higher uncertainty slows down inflation adjustments at all gap sizes. This can arise as more uncertain environments elevate risk-aversion which delays decision-making. Consistent with the two aforementioned channels, Table 8 finds that the net effect on inertia tends to be positive. In terms of Figure 1, the changes are manifested in an upward shift of the curve as $|\phi^*|$ becomes smaller and an upward movement (to the left) along the curve as the gap $F(.)$ declines in size.

In Tables 9-11, we provide some robustness checks. In the previous specifications we experimented with the exclusion and introduction of certain variables based on statistical significance. This was done in different ways across inflation comovement, gap, and inertia models. We now use the same set of covariates in the case of each of the three dependent variables for the purpose of direct comparability. Moreover, we employ GDP per capita instead of relative GDP in Tables 9-11, while the list of regressors is expanded by central bank independence (CBI) in Table 10 and inflation variance around the central bank target in Table 11.

With CBI, we explicitly capture one potentially highly relevant aspect of institutional quality that may previously have fallen under uncertainty and/or economic development variables.[16] Theoretically, the impact of CBI is ambiguous. Lower levels of CBI might induce greater volatility through, for example, public debt mismanagement and amplified business cycles.[17] This can decouple domestic inflation from international trends. On the other hand, it can induce stronger international inflation comovements if it leads to contagion beyond national borders. At the other end of the spectrum, through greater credibility, higher CBI can produce lower inflation comovements as a result of more stable, lower domestic inflation during periods of international economic stress or crises. Conversely, it may yield convergence toward lower, more stable inflation in the remainder of the developed world, thus culminating in greater synchronization.

Tables 9-11 reveal that our core conclusions are generally not altered by the aforementioned adjustments.[18] Regarding CBI, we find that it does not play a significant role in any of the regressions, although the positive coefficient alone in column (1) of Table 10 suggests that lower independence is weakly associated with lower inflation comovements. This also holds true when we remove other variables, such as uncertainty and those pertaining to economic size, from the analysis.[19] The result can be explained by the lack of adequate CBI variation over time and across countries in our sample. From the perspective of CBI, our countries are relatively homogeneous over the sample period.[20]

In particular, the overwhelming majority of countries display relatively high time-invariant CBI values of around 0.80 to 0.90 since the mid or late 90s. To illustrate, while Albania, Turkey, and Montenegro or Sweden have very different average international inflation correlations, their CBI index values are predominantly stuck at about 0.8 over the time interval. Similarly, we get more cross-country variation in average inflation comovements than CBI values for euro area countries. In the less frequent cases of countries with notably lower CBI, such as the US, UK, and Denmark, the magnitude of their inflation correlations tends to be similar to those

[16]Higher institutional quality can be related to lower levels of uncertainty and higher levels of economic development.

[17]With the government placing pressure on the central bank to run profits in order to support public finances, or implement expansionary monetary policy in the lead up to elections.

[18]Table 11 now tenders some evidence of a positive link between international reserves and inflation comovements.

[19]Results available upon request.

[20]CBI data for Kosovo and Serbia are unavailable.

of high CBI countries. To unmask a possible CBI effect, a longer time period that better captures central bank reforms post Bretton Woods would be required as well as a wider sample of countries including more emerging and developing markets.[21]

Finally, Table 11 shows evidence of stronger international comovements and smaller gaps when inflation is less volatile around the central bank's medium-run target (see table note for variable definition). This result may reflect the effects of a convergence in inflation-targeting policies across countries. Ignoring statistical significance, column (3) meanwhile suggests that a better anchoring of inflation produces lower gap persistence. More stable price-setting environments, in particular, enable more regular adjustments in line with optimal decision-making amongst microeconomic agents.

5 Conclusions

Although much emphasis has been placed on international inflation comovements within monetary policy circles, its dynamics and underlying drivers are not well understood. This is especially pertinent in the context of inflation forecasting. The extent to which inflation is driven by international relative to local forces still remains a contentious issue, due to the risk of overvaluing the impact of national policies in a globalized well-integrated world. Nevertheless, if globalization continues to stagnate and fragmentation effects set in, one may argue that national policies may receive higher weight in the future. At the same time, in a world of geopolitical blocs, comovements may strengthen at regional levels.

On a country-by-country basis and over the cross section, we show how i) international inflation comovements, ii) deviations from international inflation, and iii) the persistence of these gaps are inextricably linked. Our analysis reveals that higher correlations between domestic and international inflation rates are associated with smaller deviations from international inflation patterns. In turn, smaller inflation gaps, ceteris paribus, are characterized by greater persistence. While cross-country inflation comovements fluctuate significantly over time, we find that international inflation continues to exert a strong and durable gravitational pull on domestic inflation. Our results suggest that domestic inflation adjustments and volatility are notably higher for larger deviations from the international trend.

Our country-specific models indicate that the inflation gap, which is the idiosyncratic component of domestic inflation, exhibits nonlinear dynamics. In particular, we find asymmetries

[21] The majority of central bank reforms for the latter cohort of countries have occurred in more recent times, namely post GFC, compared to what is observed for developed economies.

in inflation adjustment over disparate gap sizes. For relatively large inflation gaps, the typical half-life of deviations stands below one month. For moderately sized gaps, although inertia generally increases, half-lives continue to be quite low across countries, falling short of two months on average. Very small inflation gaps on the other hand have a tendency to display much stronger inertia, with half-lives normally lying around 18 months. For such patterns in dynamics, a parallel can be drawn with the "opportunistic approach to disinflation", in the sense that adjustments to inflation are more pronounced when it is further away from its target.

Examining the potential drivers of inflation comovements, gaps, and inertia, we retrieve evidence that a number of macroeconomic and geographic factors play a role. By increasing comovements with international inflation, higher trade and financial openness, relative economic size, international reserves, exchange rate rigidity, and uncertainty reduce the size of inflation deviations from the international trend. Meanwhile, countries that are geographically more distant from others show less synchronized inflation cycles and therefore larger inflation gaps.

The corresponding impacts on persistence, however, are less clear cut from a theoretical standpoint. This is attributed to the fact that the effective rate of adjustment is not only a function of the size of the inflation gap, but also the rate of adjustment for a given size of the inflation deviation. On the one hand, the aforementioned macroeconomic factors and geographic proximity impart positive effects on idiosyncratic inflation persistence by attenuating the size of deviations from international inflation. On the other hand, most of these drivers covary positively with the speed of inflation adjustment holding constant the size of inflation gaps, thereby negatively influencing idiosyncratic inflation persistence. We find, therefore, that net effects on inertia ultimately depend on which channel dominates in the sample.

According to our results, openness raises persistence overall via stronger gap channel effects, while economic size, exchange rate rigidity, and geographic proximity reduce persistence overall via stronger adjustment channel effects. For increases in uncertainty and international reserves, the implications for persistence are unequivocal as both channels imply an increase in inertia. This distributional analysis of the effects on gap persistence highlights the salience of modeling nonlinearities in the dynamics of inflation deviations from international trends.

Declarations

Competing Interests: The author has no financial or non-financial interests to disclose.

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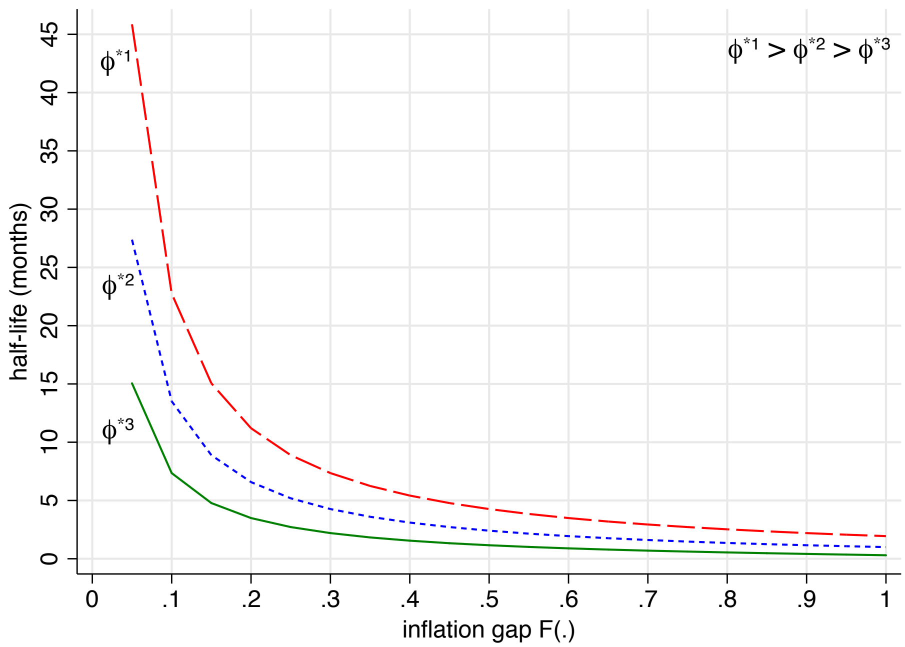
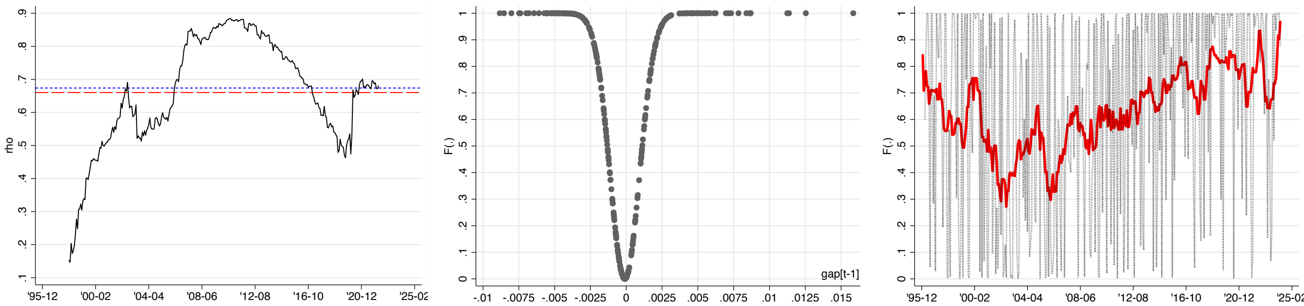
Figure 1: Inflation Gaps, Adjustment Coefficients, and Persistence Calibrations

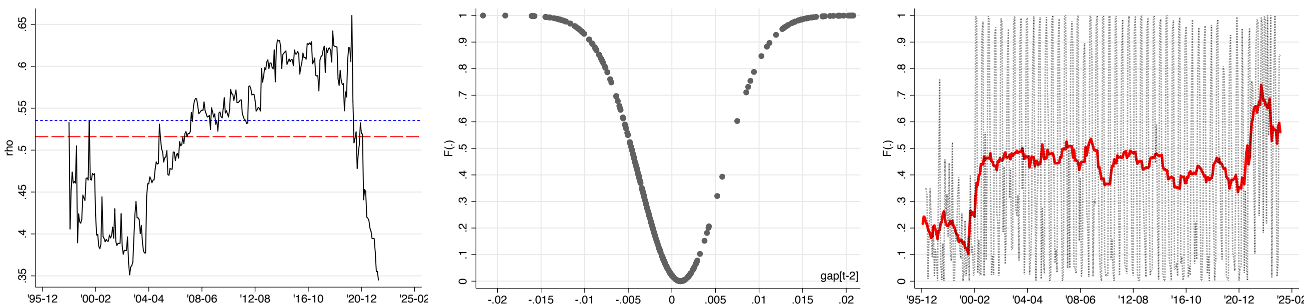


Notes: Transition function F(.) provides a standardized measure of the absolute idiosyncratic inflation gap $|\pi^i - \pi^*| \approx |(\pi^i - \pi^*) - \mu^i|$. ϕ^*F(.) is the effective inflation adjustment coefficient used in the calcualtion of the half-life. $\phi^{*1} = -0.3$, $\phi^{*2} = -0.5$, $\phi^{*3} = -0.9$.

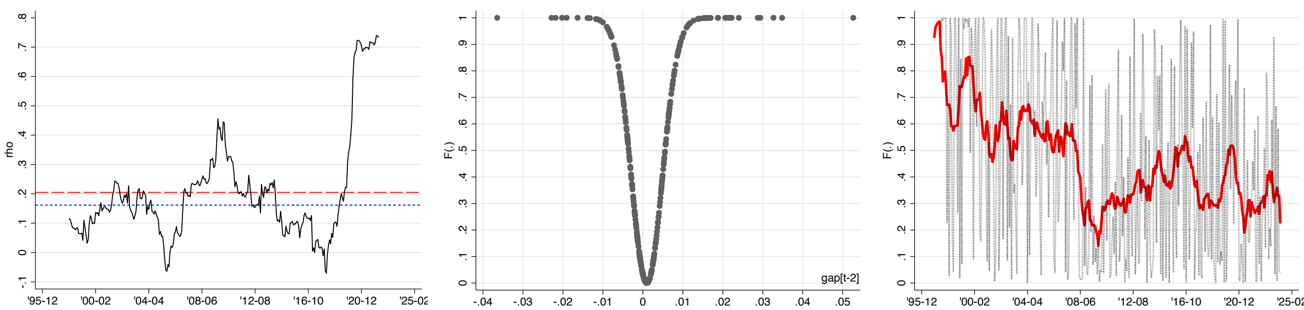
Figure 2: International Inflation Comovements (left), Transition Function vs. Transition Variable (middle), Transition Function vs. Time (right)



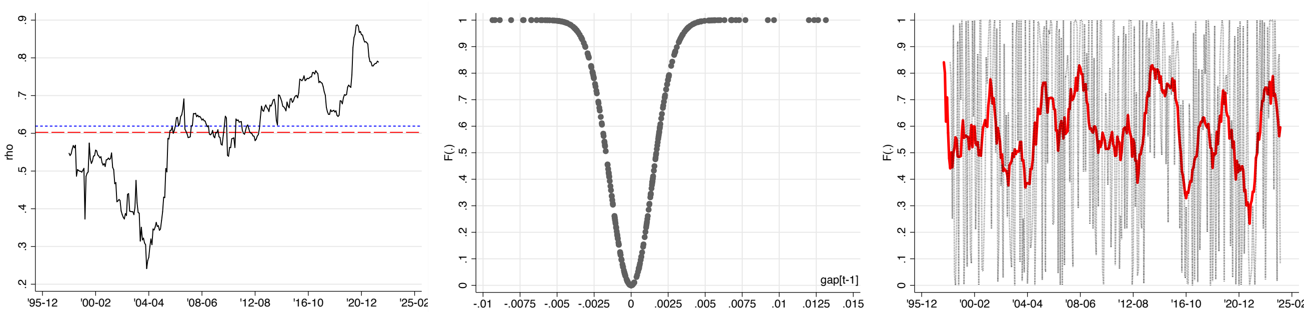
(a) Austria, $\eta = -0.21^{***}$



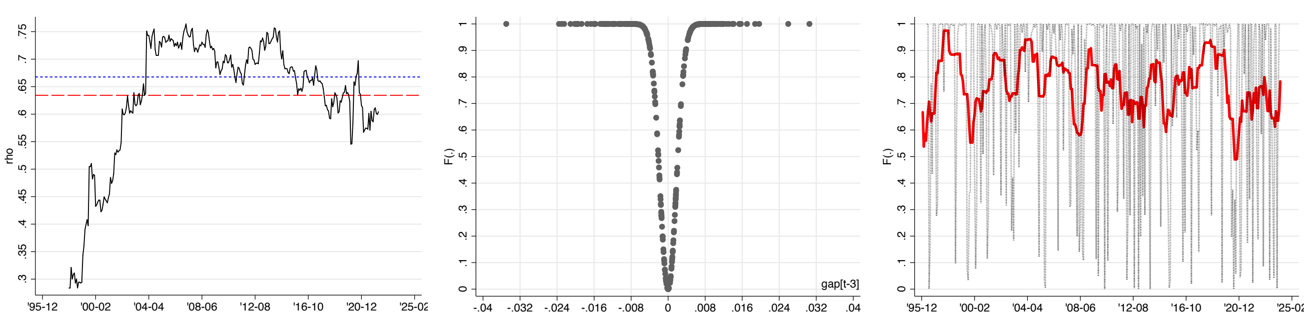
(b) Belgium, $\eta = -0.59^{***}$



(c) Bulgaria, $\eta = -0.45^{***}$

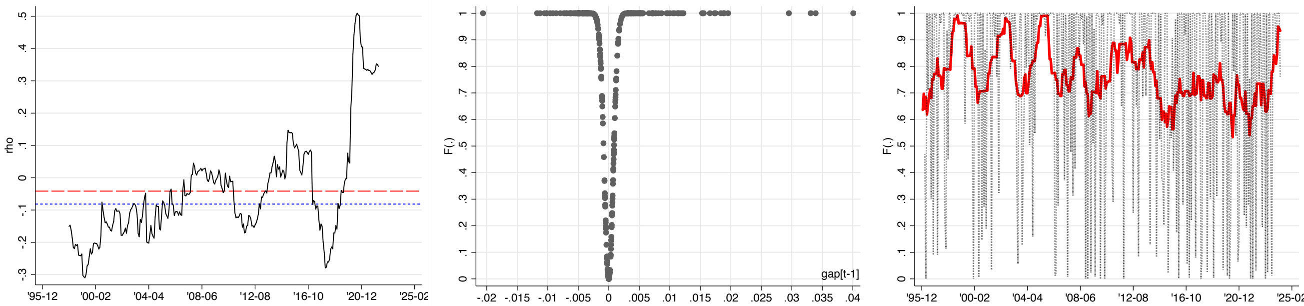


(d) Croatia, $\eta = -0.40^{***}$

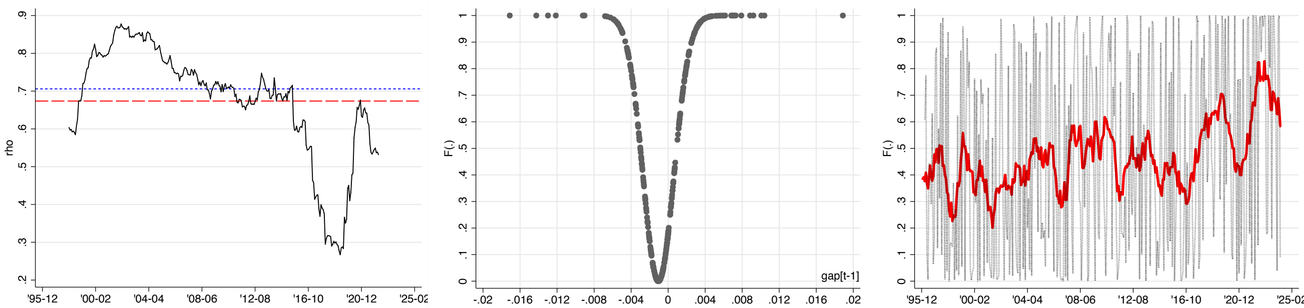


(e) Cyprus, $\eta = -0.11^{*}$

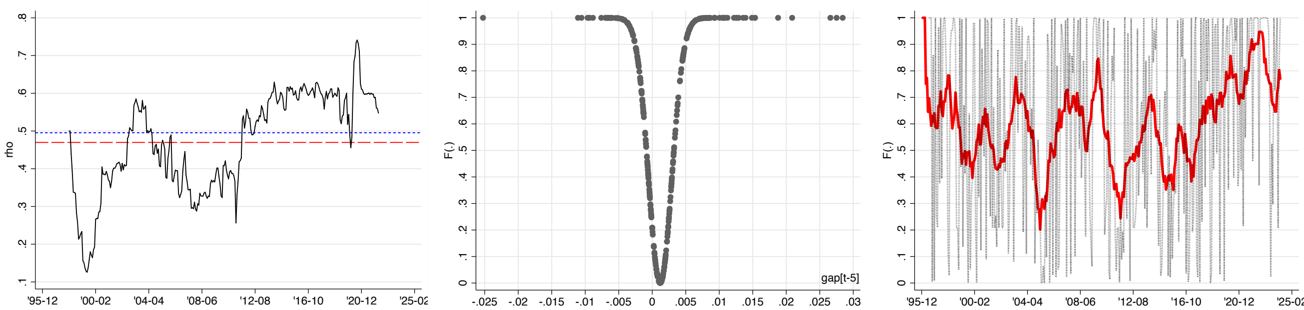
Fig. 2 (cont.): International Inflation Comovements (left), Transition Function vs. Transition Variable (middle), Transition Function vs. Time (right)



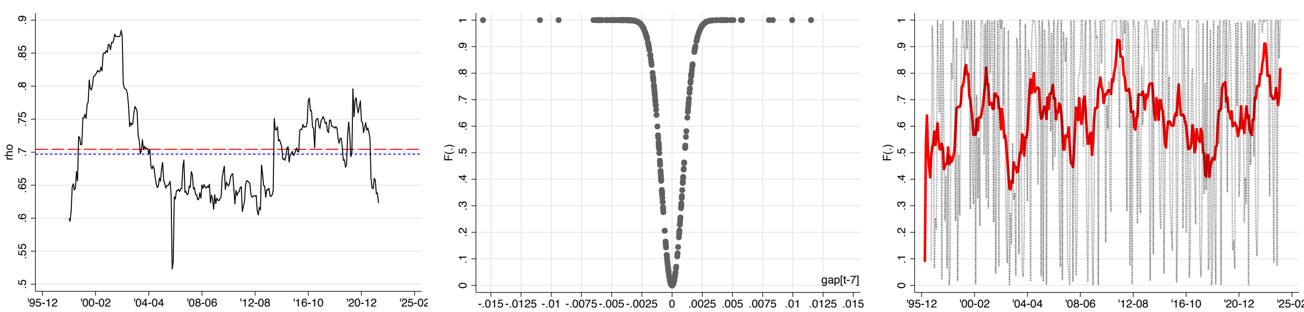
(f) Czechia, $\eta = -0.55^{***}$



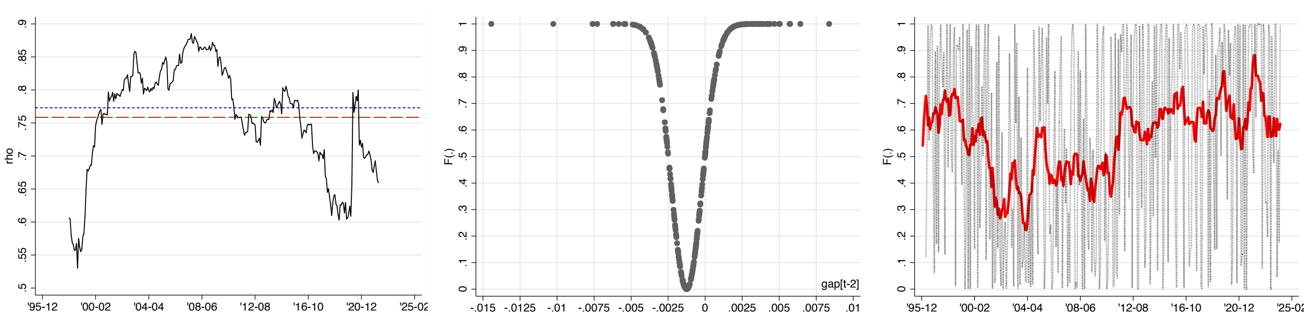
(g) Denmark, $\eta = -0.51^{***}$



(h) Estonia, $\eta = -0.20^{***}$

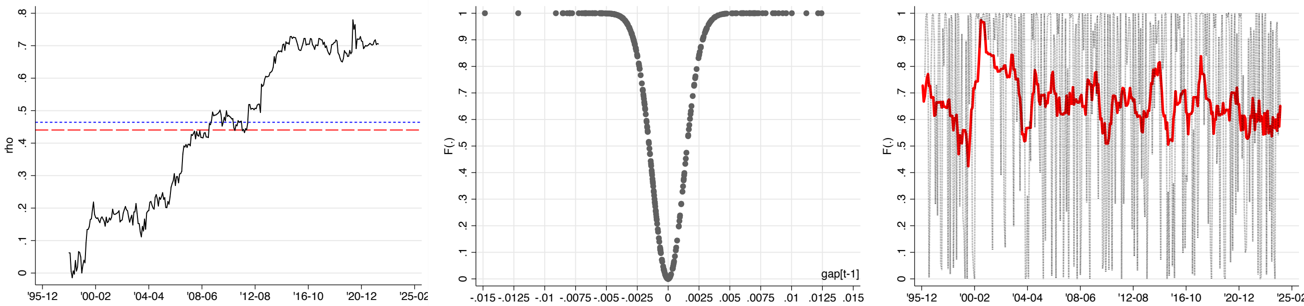


(i) Finland, $\eta = -0.31^{***}$

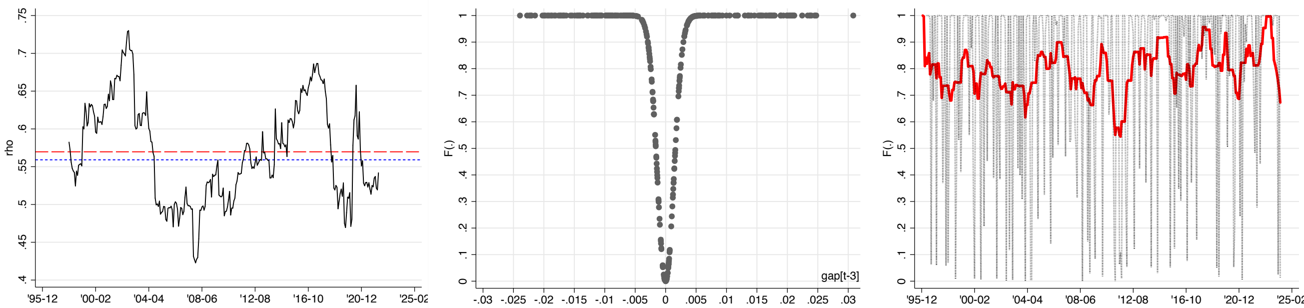


(j) France, $\eta = -0.70^{***}$

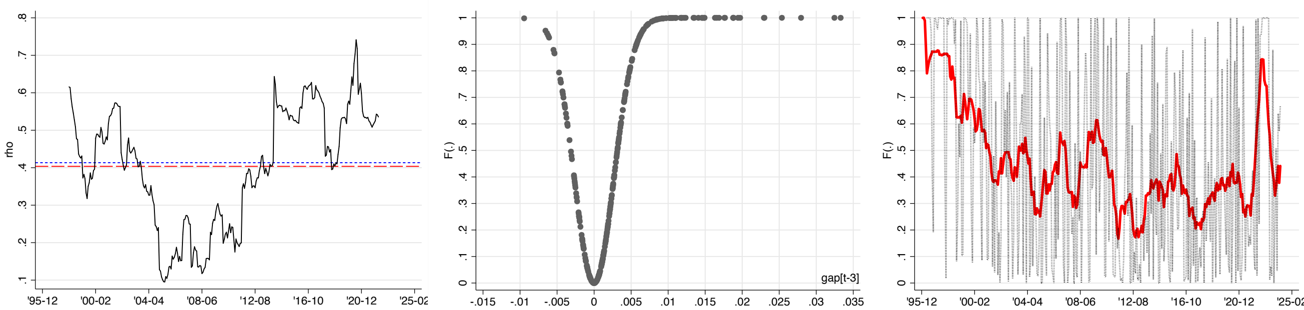
Fig. 2 (cont.): International Inflation Comovements (left), Transition Function vs. Transition Variable (middle), Transition Function vs. Time (right)



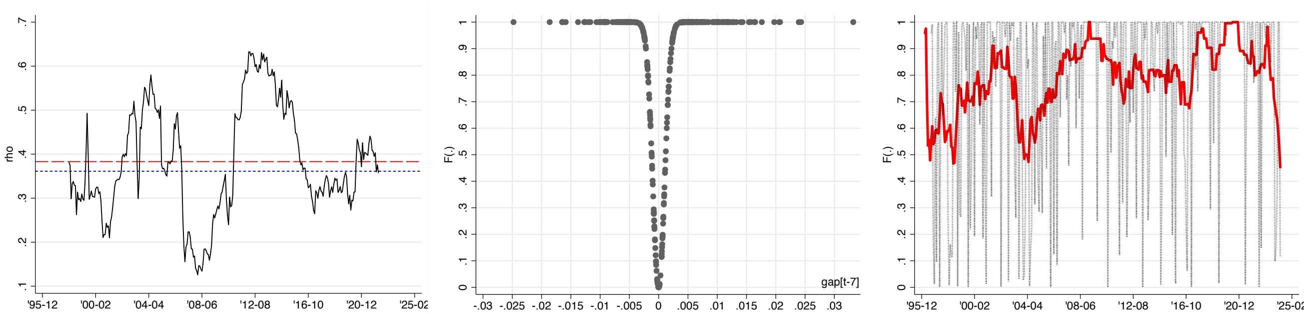
(k) Germany, $\eta = -0.48^{***}$



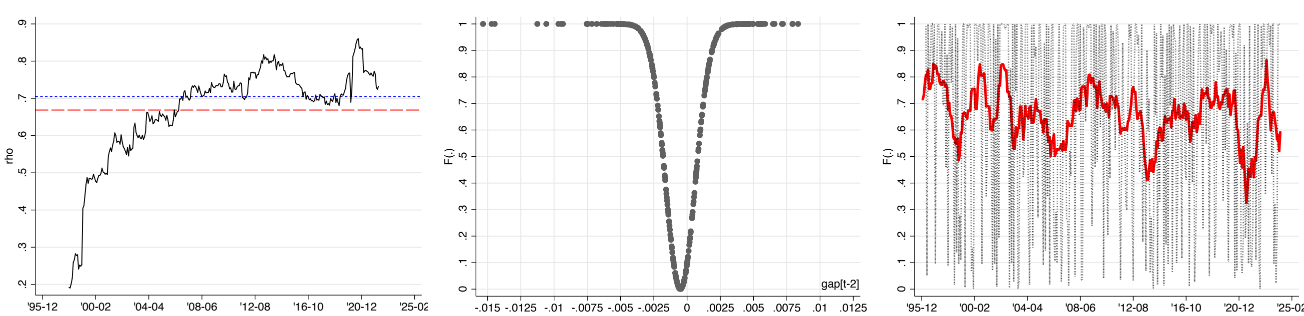
(l) Greece, $\eta = -0.17^{***}$



(m) Hungary, $\eta = -0.15^{***}$

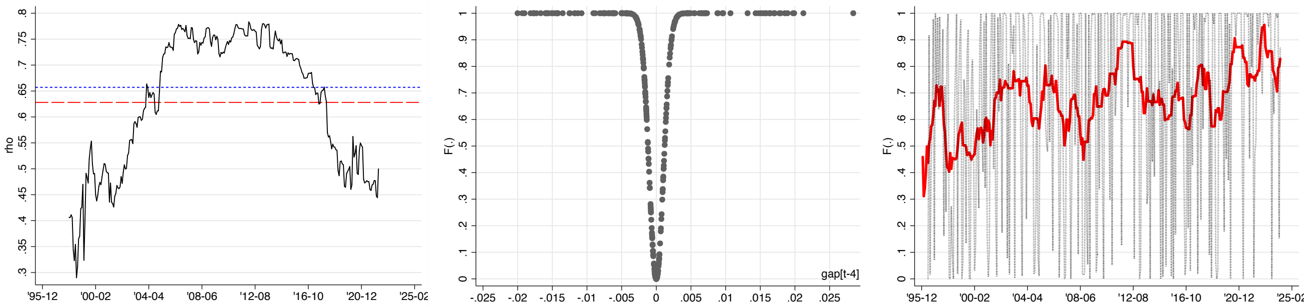


(n) Iceland, $\eta = -0.32^{***}$

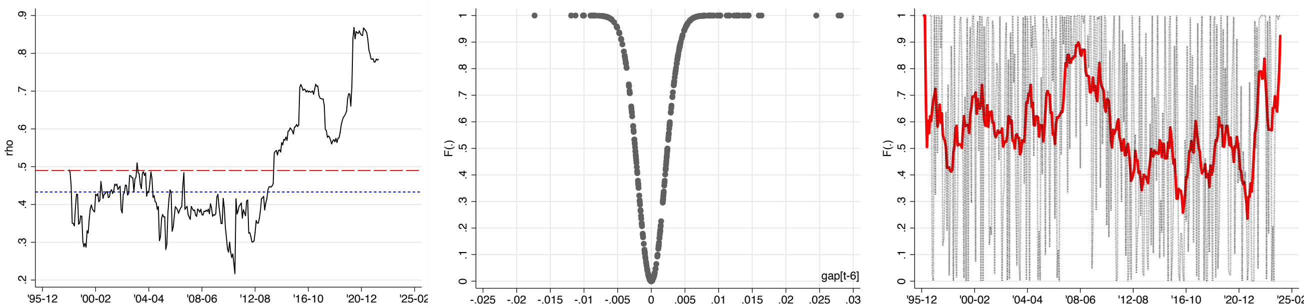


(o) Ireland, $\eta = -0.42^{***}$

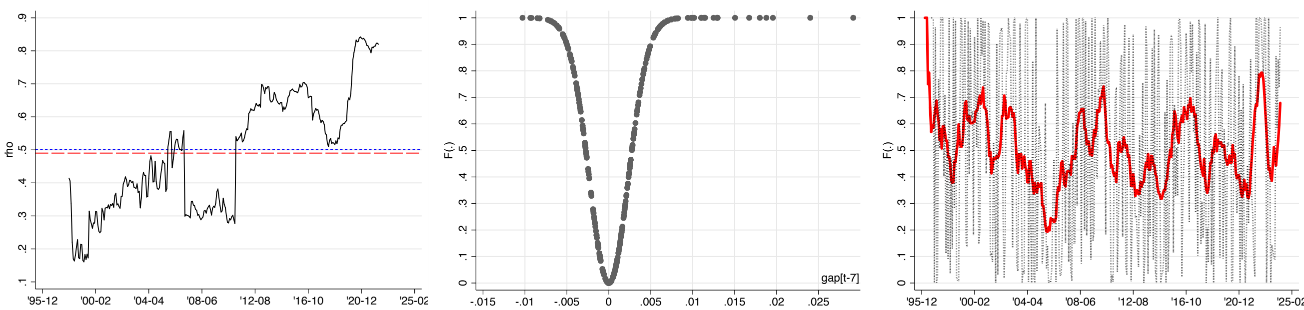
Fig. 2 (cont.): International Inflation Comovements (left), Transition Function vs. Transition Variable (middle), Transition Function vs. Time (right)



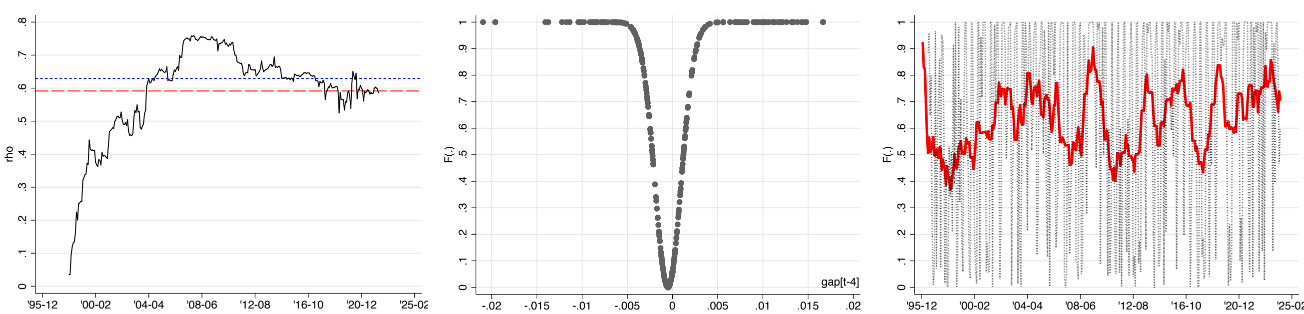
(p) Italy, $\eta = -0.17^{***}$



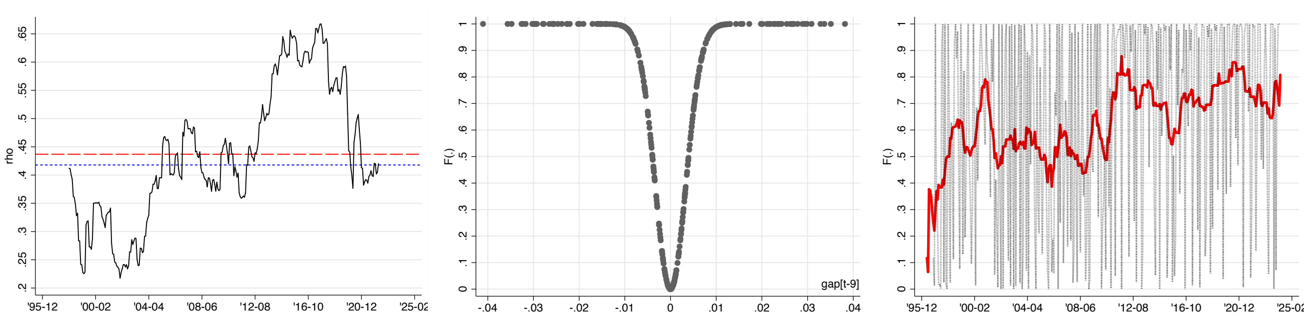
(q) Latvia, $\eta = -0.50^{***}$



(r) Lithuania, $\eta = -0.30^{***}$

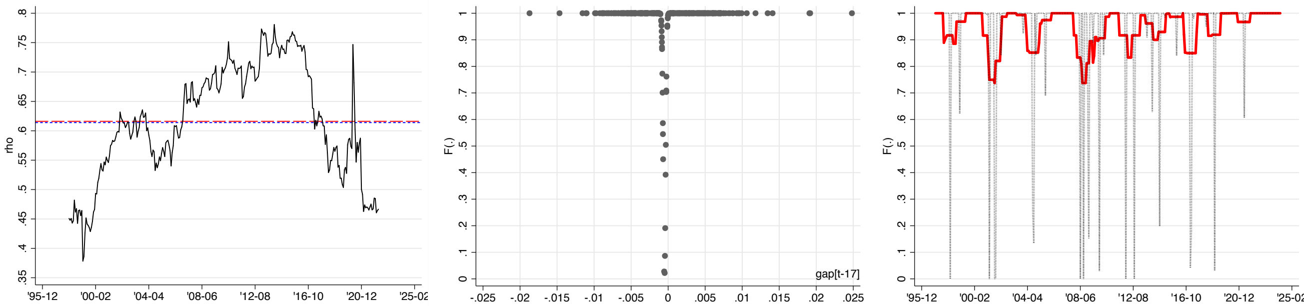


(s) Luxembourg, $\eta = -0.29^{***}$

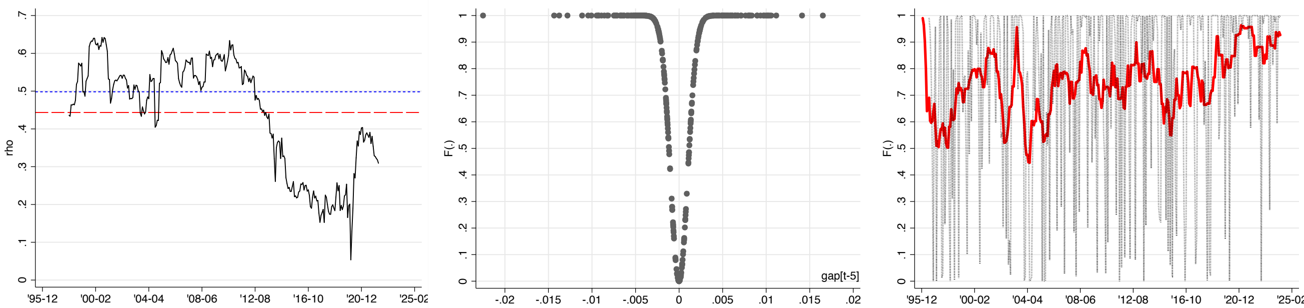


(t) Malta, $\eta = -0.25^{***}$

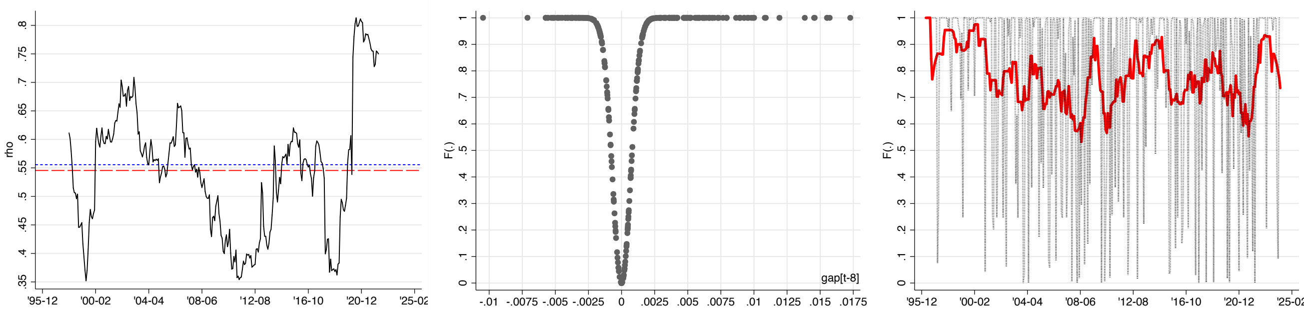
Fig. 2 (cont.): International Inflation Comovements (left), Transition Function vs. Transition Variable (middle), Transition Function vs. Time (right)



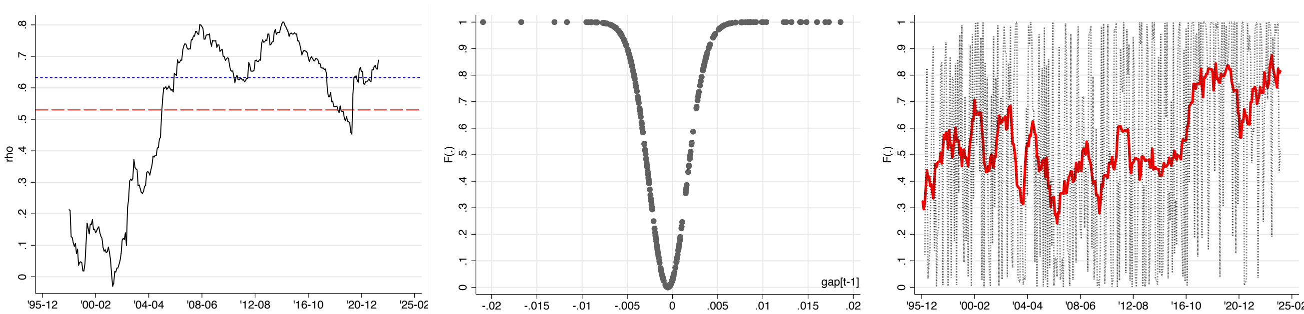
(u) Netherlands, $\eta = -0.49^{***}$



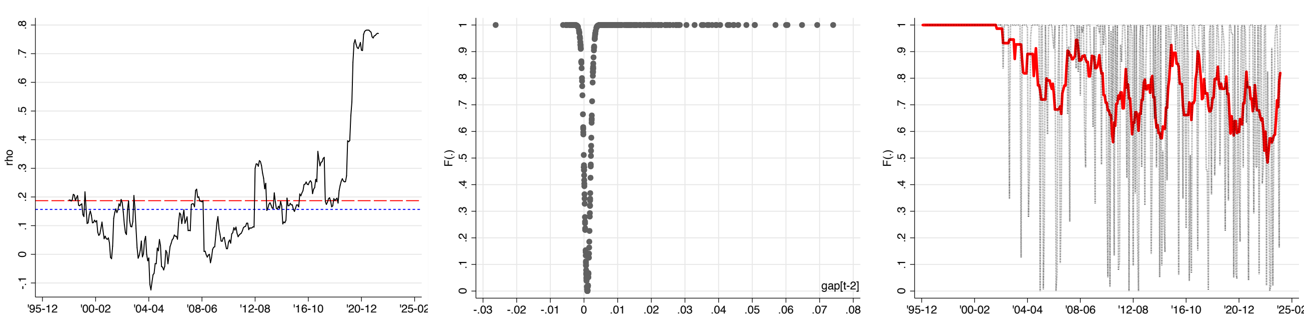
(v) Norway, $\eta = -0.42^{***}$



(w) Poland, $\eta = -0.25^{***}$

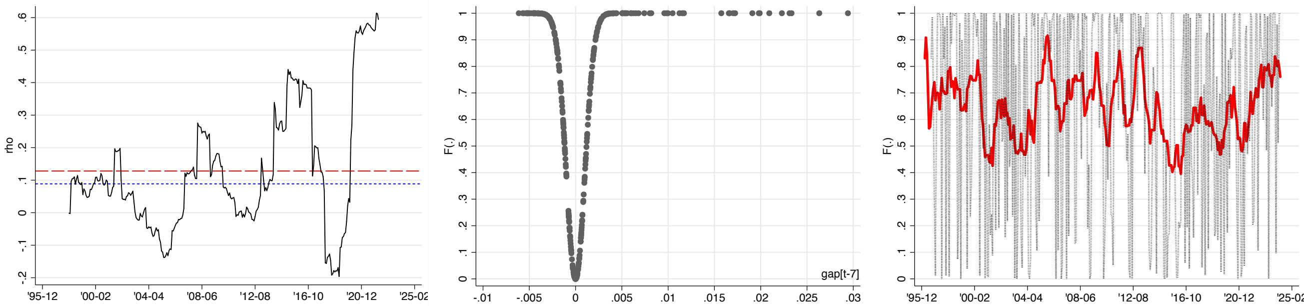


(x) Portugal, $\eta = -0.39^{***}$

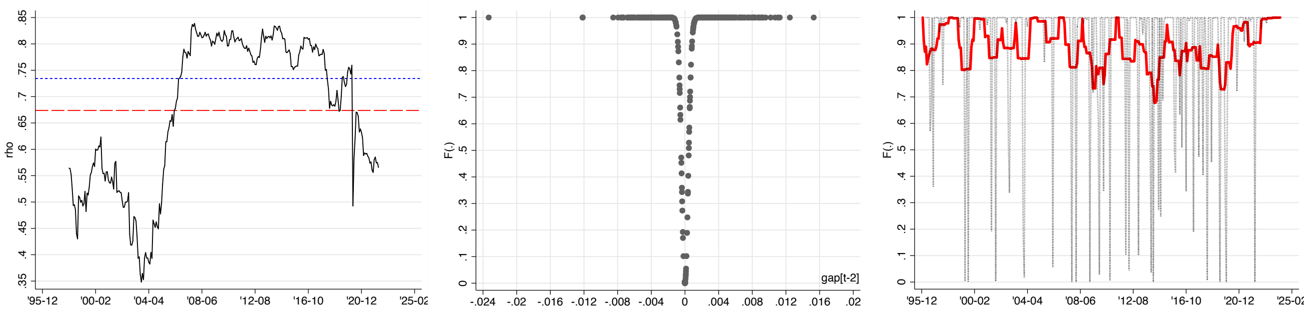


(y) Romania, $\eta = -0.40^{***}$

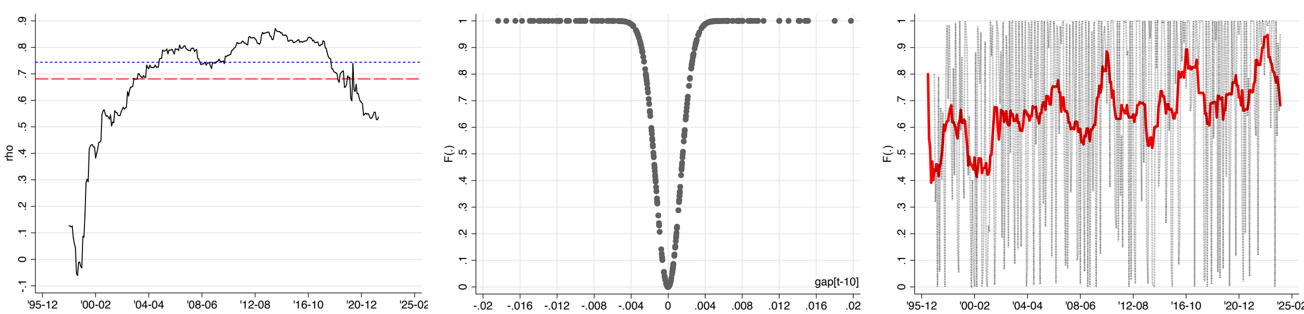
Fig. 2 (cont.): International Inflation Comovements (left), Transition Function vs. Transition Variable (middle), Transition Function vs. Time (right)



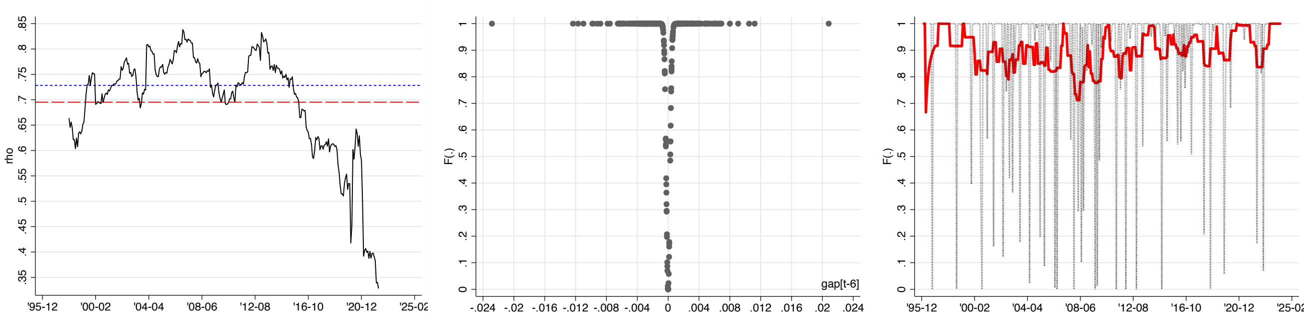
(z) Slovakia, $\eta = -0.21^{***}$



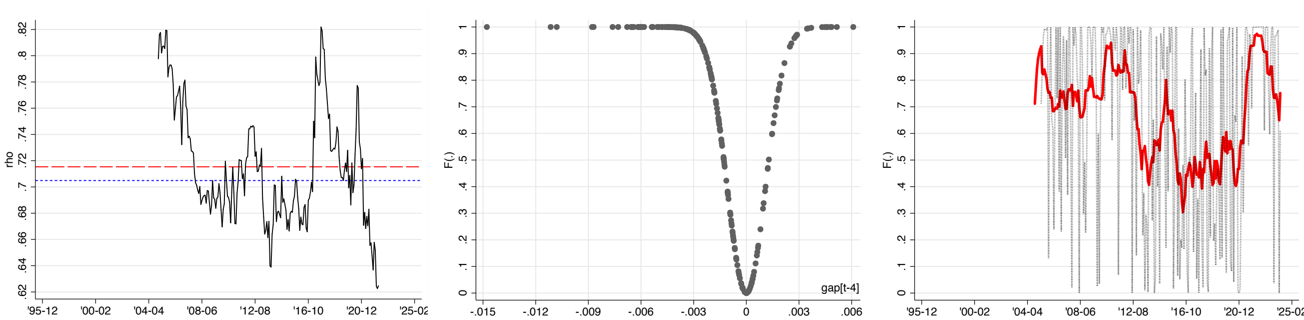
(aa) Slovenia, $\eta = -0.52^{***}$



(ab) Spain, $\eta = -0.21^{***}$

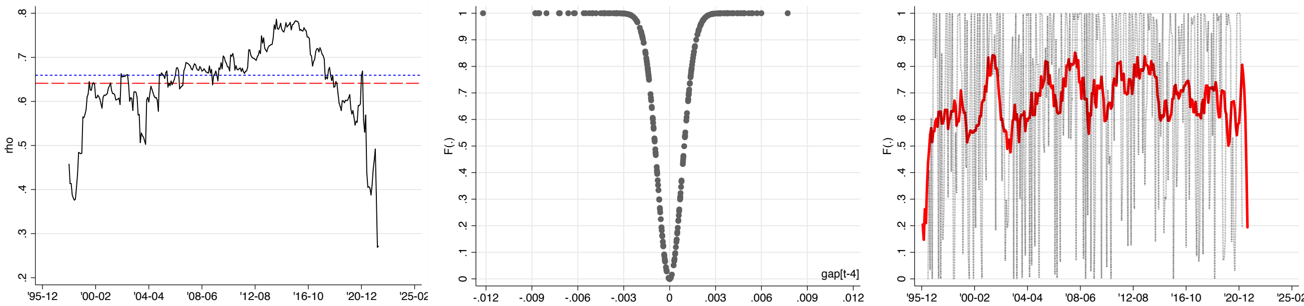


(ac) Sweden, $\eta = -0.34^{***}$

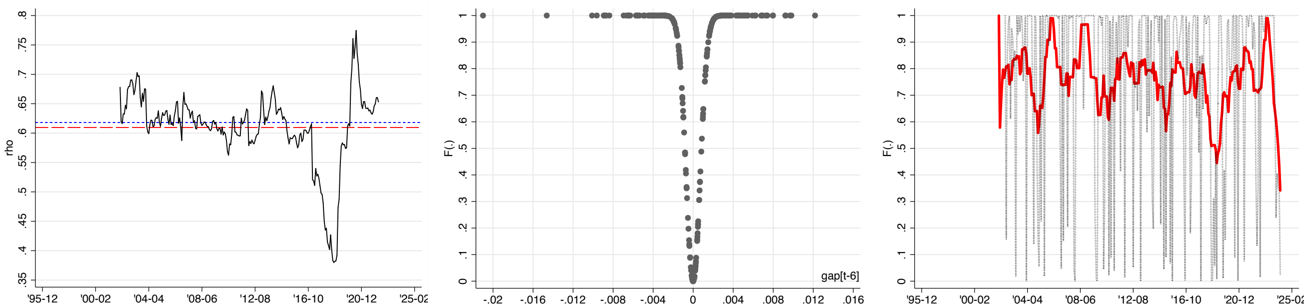


(ad) Switzerland, $\eta = -0.21^{***}$

Fig. 2 (cont.): International Inflation Comovements (left), Transition Function vs. Transition Variable (middle), Transition Function vs. Time (right)



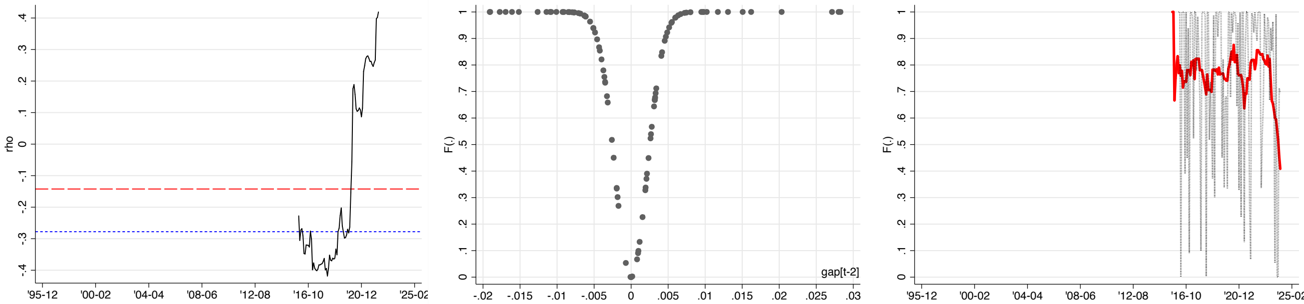
(ae) United Kingdom, $\eta = -0.20$***



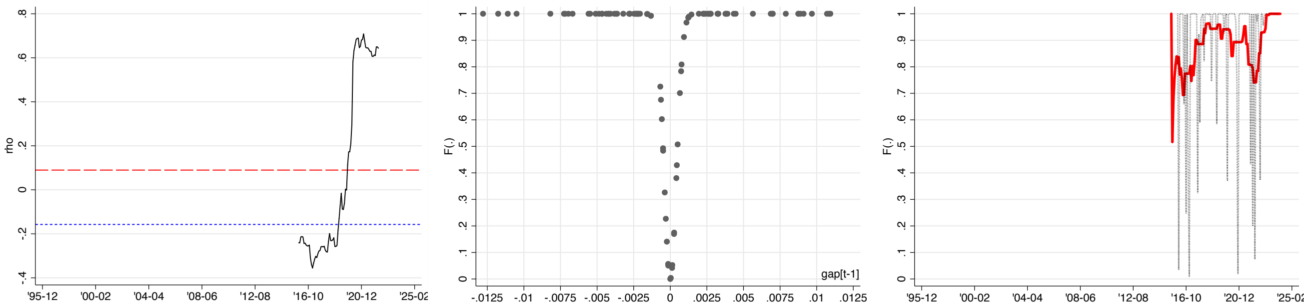
(af) United States, $\eta = -0.00$

Notes: rho is the monthly-rolling 4-year gross correlation between domestic and international inflation. Each of the aforementioned correlations is reported at the mid point of the respective 4-year period. International inflation is measured as the cross-country median inflation rate at each point in time. Red long-dash reference line marks the average 4-year correlation over the period. Blue short-dash reference line marks the median 4-year correlation over the period. F(.) is the transition function. gap[t-d] is the idiosyncratic inflation gap at time t-d. Red series plotted in graphs on right is the 12-month moving average of F(.), with each observation reported at the mid point of the respective 12-month period. η is the gross correlation between the series in the left graph (rho) and the red series in the right graph (12-month moving average F(.)). ***,**,* denote 1%, 5%, and 10% significance levels respectively.

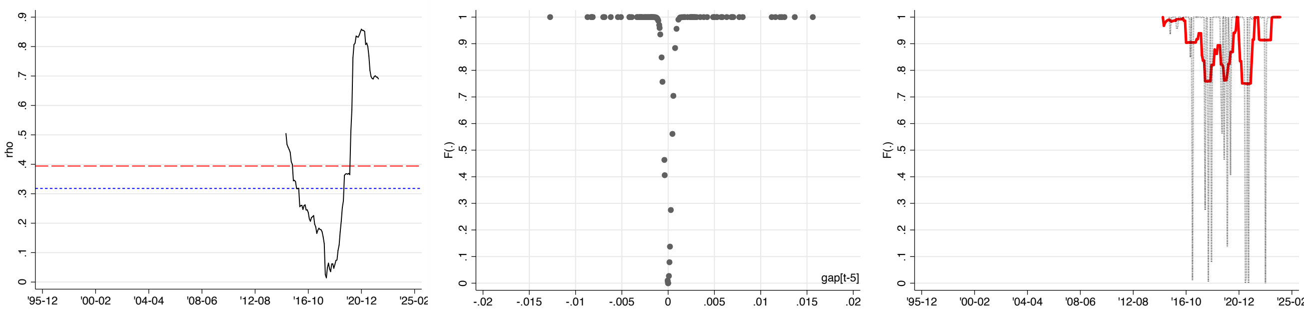
Figure 3: International Inflation Comovements (left), Transition Function vs. Transition Variable (middle), Transition Function vs. Time (right) - Emerging Markets



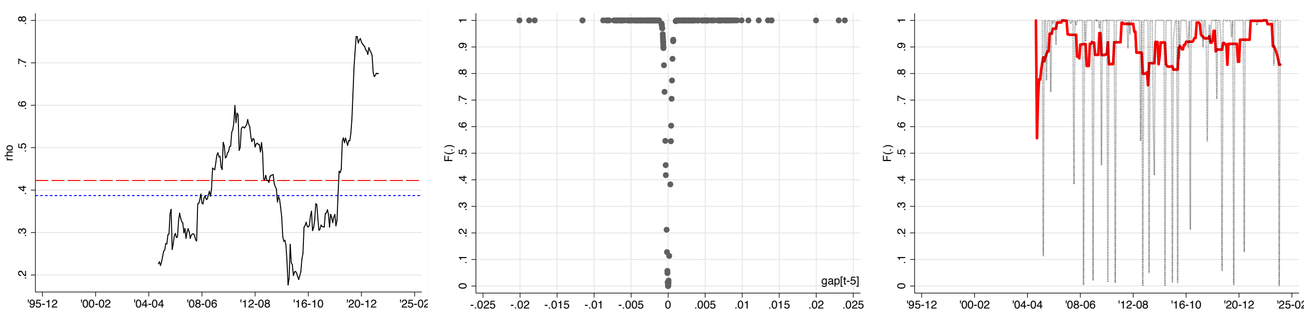
(a) Albania, $\eta = -0.35^{***}$



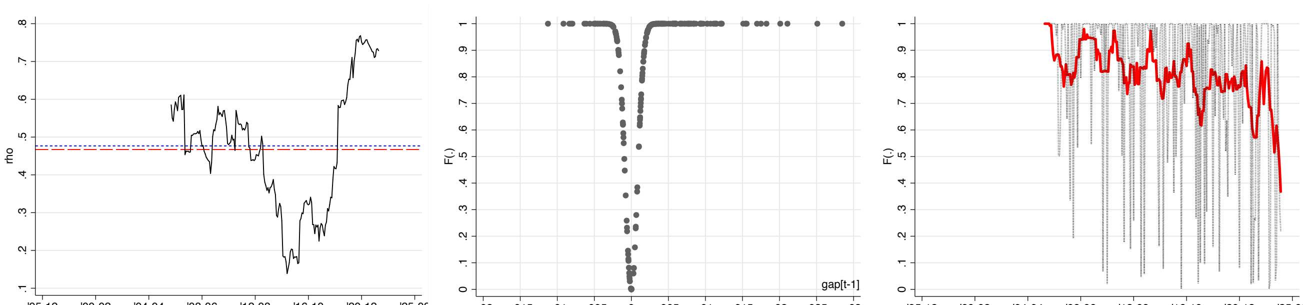
(b) Kosovo, $\eta = -0.61^{***}$



(c) Montenegro, $\eta = -0.10$

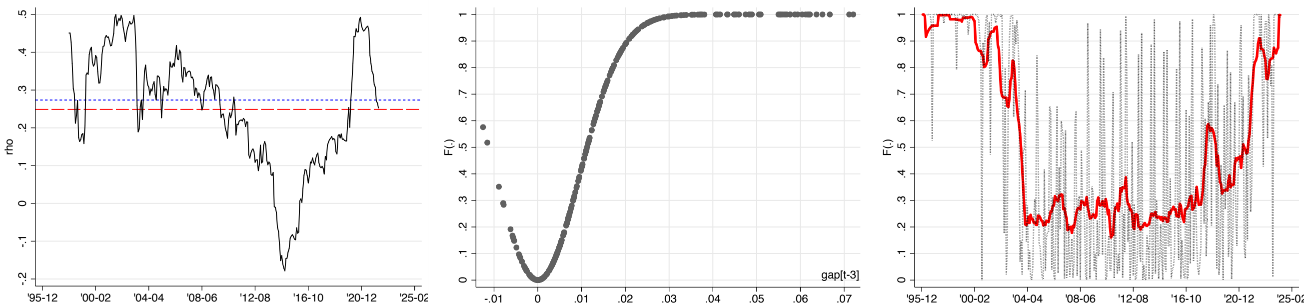


(d) North Macedonia, $\eta = -0.30^{***}$



(e) Serbia, $\eta = -0.20^{***}$

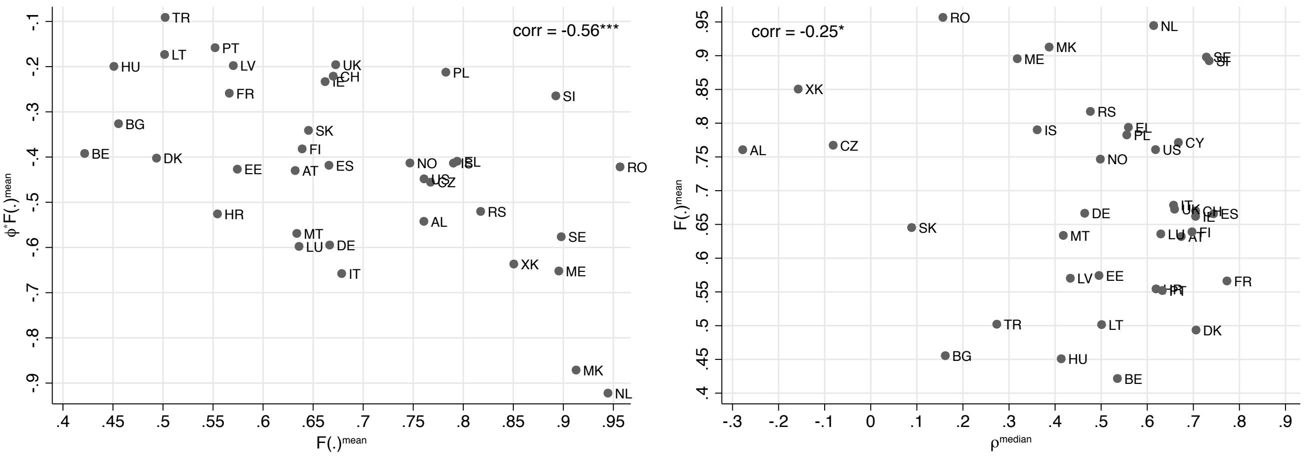
Fig. 3 (cont.): International Inflation Comovements (left), Transition Function vs. Transition Variable (middle), Transition Function vs. Time (right) - Emerging Markets



(f) Turkey, $\eta = 0.20^{***}$ (pre-2005:-0.53^{***})

Notes: rho is the monthly-rolling 4-year gross correlation between domestic and international inflation. Each of the aforementioned correlations is reported at the mid point of the respective 4-year period. International inflation is measured as the cross-country median inflation rate at each point in time. Red long-dash reference line marks the average 4-year correlation over the period. Blue short-dash reference line marks the median 4-year correlation over the period. F(.) is the transition function. gap[t-d] is the idiosyncratic inflation gap at time t-d. Red series plotted in graphs on right is the 12-month moving average of F(.), with each observation reported at the mid point of the respective 12-month period. η is the gross correlation between the series in the left graph (rho) and the red series in the right graph (12-month moving average F(.)). ***,**,* denote 1%, 5%, and 10% significance levels respectively.

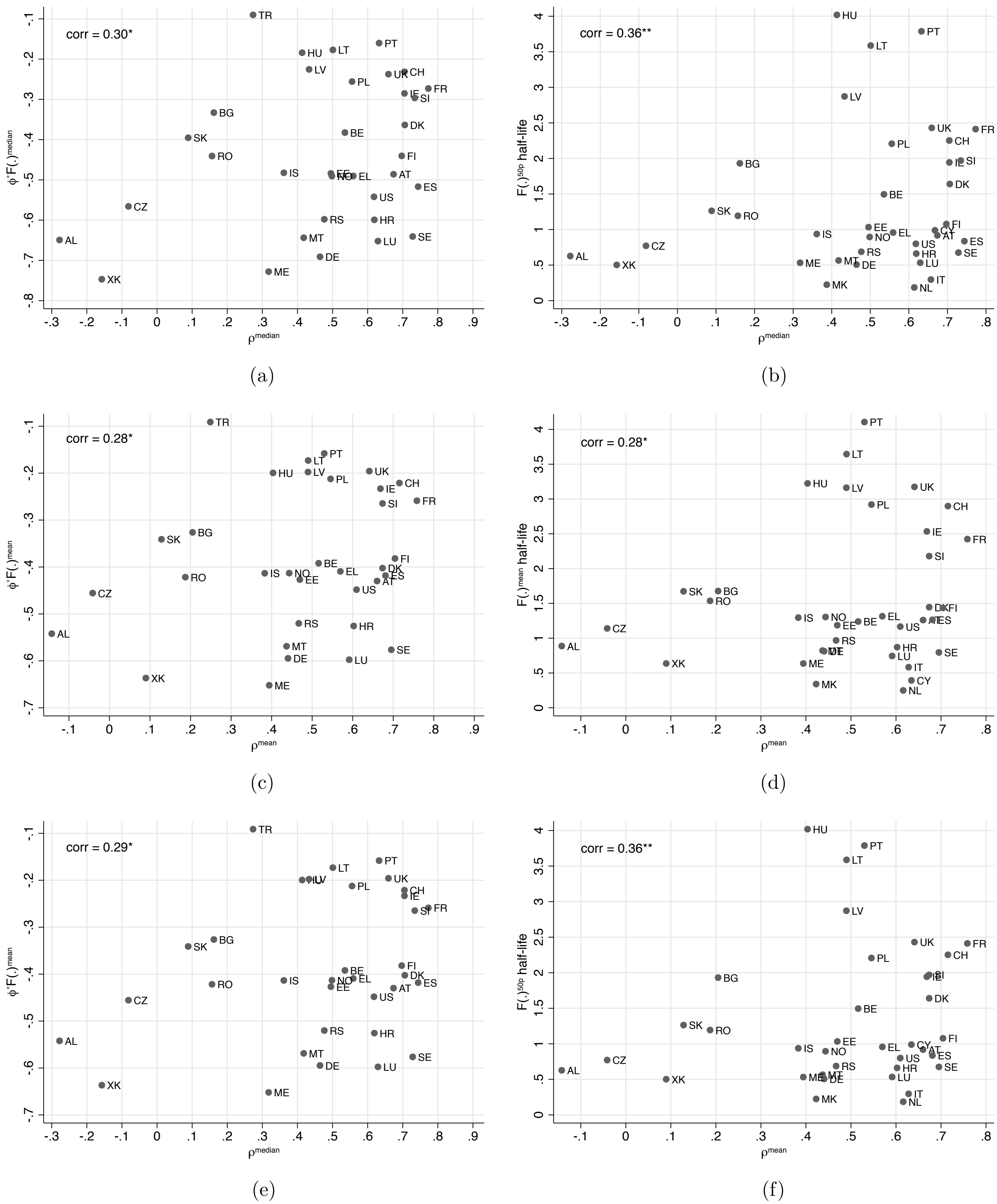
Figure 4: Cross Section I - Inflation Adjustment vs. Transition Function (a) & Transition Function vs. International Inflation Correlation (b)



(a) (b)

Notes: Full sample period mean or median monthly values reported for each country. Transition function F(.) provides a standardized measure of the absolute idiosyncratic inflation gap $|\pi^i - \pi^*| \approx |(\pi^i - \pi^*) - \mu^i|$. ϕ^*F(.) is the effective inflation adjustment coefficient at the given F(.) value, where 1 + ϕ^*F(.) is the persistence of the corresponding inflation gap. ρ is the monthly-rolling 4-year gross correlation between domestic and international inflation, where international inflation is the cross-country median inflation rate at each point in time. Results are the same with $F(.)^{median}$ and ρ^{mean}. ***,**,* denote 1%, 5%, and 10% significance levels respectively.

Figure 5: Cross Section II - Inflation Persistence and International Inflation Comovements



Notes: Full sample period mean or median (50p) monthly values reported for each country. Transition function F(.) provides a standardized measure of the absolute idiosyncratic inflation gap $|\pi^i - \pi^*| \approx |(\pi^i - \pi^*) - \mu^i|$. ϕ^*F(.) is the effective inflation adjustment coefficient at the given F(.) value, where $1 + \phi^*$F(.) is the persistence of the corresponding inflation gap. Contingent on the size of F(.), F(.) half-life is the number of months required for a deviation from $\pi^i - \pi^* \approx 0$, or unit impulse, to dissipate permanently by 50 percent from the point of the initial shock. ρ is the monthly-rolling 4-year gross correlation between domestic and international inflation, where international inflation is the cross-country median inflation rate at each point in time. ***,**,* denote 1%, 5%, and 10% significance levels respectively.

Table 1: Domestic-International Inflation Correlations

country	$\boldsymbol{\rho^{\pi^i,\pi^*}}$	**country**	$\boldsymbol{\rho^{\pi^i,\pi^*}}$
Albania	0.059	Lithuania	0.574
Austria	0.669	Luxembourg	0.577
Belgium	0.475	Malta	0.421
Bulgaria	0.039	Montenegro	0.606
Croatia	0.688	Netherlands	0.571
Cyprus	0.558	North Macedonia	0.540
Czechia	0.171	Norway	0.422
Denmark	0.625	Poland	0.560
Estonia	0.531	Portugal	0.603
Finland	0.662	Romania	0.138
France	0.733	Serbia	0.503
Germany	0.554	Slovakia	0.234
Greece	0.525	Slovenia	0.665
Hungary	0.464	Spain	0.674
Iceland	0.366	Sweden	0.599
Ireland	0.671	Switzerland	0.655
Italy	0.588	Turkey	0.332
Kosovo	0.468	United Kingdom	0.609
Latvia	0.569	United States	0.616

Notes: Gross correlation (ρ) between domestic inflation (π^i) and international inflation (π^*) over full time period 1996:01-2024:03 reported. International inflation is gauged by the cross-country median inflation rate at each point in time.

Table 2: Inflation Adjustments and Volatility across Regimes

$t-1$:	$\lvert\pi^i - \pi^*\rvert > \tau^i$	$\lvert\pi^i - \pi^*\rvert \leqslant \tau^i$	$t-1$:	$\lvert\pi^i - \pi^*\rvert > \tau^i$	$\lvert\pi^i - \pi^*\rvert \leqslant \tau^i$
country	$\overline{\lvert\Delta\pi_t^i\rvert}$	$\overline{\lvert\Delta\pi_t^i\rvert}$	**country**	$\overline{\lvert\Delta\pi_t^i\rvert}$	$\overline{\lvert\Delta\pi_t^i\rvert}$
Albania	0.009	0.005	Lithuania	0.006	0.004
Austria	0.006	0.003	Luxembourg	0.013	0.005
Belgium	0.022	0.005	Malta	0.016	0.009
Bulgaria	0.010	0.005	Montenegro	0.006	0.003
Croatia	0.005	0.003	Netherlands	0.008	0.005
Cyprus	0.012	0.007	North Macedonia	0.008	0.004
Czechia	0.008	0.004	Norway	0.007	0.004
Denmark	0.005	0.003	Poland	0.005	0.002
Estonia	0.007	0.003	Portugal	0.008	0.004
Finland	0.005	0.003	Romania	0.011	0.004
France	0.005	0.003	Serbia	0.008	0.004
Germany	0.007	0.004	Slovakia	0.007	0.004
Greece	0.018	0.009	Slovenia	0.006	0.004
Hungary	0.006	0.004	Spain	0.010	0.005
Iceland	0.010	0.005	Sweden	0.007	0.004
Ireland	0.006	0.004	Switzerland	0.005	0.003
Italy	0.013	0.006	Turkey	0.017	0.008
Kosovo	0.005	0.003	United Kingdom	0.005	0.003
Latvia	0.008	0.004	United States	0.005	0.003
country	$\sigma^{\Delta\pi_t^i}$	$\sigma^{\Delta\pi_t^i}$	**country**	$\sigma^{\Delta\pi_t^i}$	$\sigma^{\Delta\pi_t^i}$
Albania	0.010	0.007	Lithuania	0.008	0.005
Austria	0.008	0.004	Luxembourg	0.015	0.007
Belgium	0.023	0.007	Malta	0.019	0.012
Bulgaria	0.014	0.006	Montenegro	0.007	0.004
Croatia	0.006	0.004	Netherlands	0.011	0.007
Cyprus	0.016	0.009	North Macedonia	0.010	0.006
Czechia	0.011	0.007	Norway	0.009	0.005
Denmark	0.007	0.004	Poland	0.007	0.004
Estonia	0.009	0.004	Portugal	0.010	0.005
Finland	0.006	0.004	Romania	0.025	0.005
France	0.006	0.004	Serbia	0.010	0.005
Germany	0.009	0.005	Slovakia	0.012	0.007
Greece	0.021	0.012	Slovenia	0.008	0.005
Hungary	0.008	0.005	Spain	0.012	0.007
Iceland	0.012	0.007	Sweden	0.009	0.005
Ireland	0.008	0.005	Switzerland	0.006	0.004
Italy	0.015	0.009	Turkey	0.022	0.010
Kosovo	0.006	0.004	United Kingdom	0.007	0.004
Latvia	0.009	0.005	United States	0.006	0.004

Notes: $\overline{\lvert\Delta\pi_t^i\rvert}$ is the average absolute change in domestic inflation. Median absolute changes are similar. $\sigma^{\Delta\pi_t^i}$ is the variance of domestic inflation changes. $\lvert\pi^i - \pi^*\rvert$ is the absolute value of the gap between domestic inflation, π^i, and international inflation, π^*. International inflation is gauged by the cross-country median inflation rate at each point in time. Threshold τ^i is the average/median value of $\lvert\pi^i - \pi^*\rvert$ for country i.

Table 3: ESTAR Estimates and Idiosyncratic Inflation Persistence

	Parameter Estimates					**Half Lives (months)**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
country	$\boldsymbol{\phi}$	$\boldsymbol{\phi^*}$	$\boldsymbol{\phi+\phi^*}$	$\tilde{\gamma}$	$\boldsymbol{\mu}$	$F(.)^{99p}$	$F(.)^{50p}$	$F(.)^{10p}$	$\overline{F(.)}$
Albania	—	-0.713^{*}	-0.713^{*}	2.195^{***}	-0.000	0.556	0.627	3.881	0.887
		(0.389)	(0.389)	(0.362)	(0.000)				
Austria	—	-0.680^{***}	-0.680^{***}	1.672^{***}	-0.000^{***}	0.608	0.918	19.466	1.260
		(0.210)	(0.210)	(0.399)	(0.000)				
Belgium	—	-0.930^{***}	-0.930^{***}	0.355^{*}	0.001^{***}	0.261	1.495	54.845	1.239
		(0.375)	(0.375)	(0.220)	(0.000)				
Bulgaria	—	-0.716^{***}	-0.716^{***}	0.882^{***}	0.001^{***}	0.550	1.931	38.894	1.677
		(0.232)	(0.232)	(0.358)	(0.000)				
Croatia	—	-0.948^{***}	-0.948^{***}	1.066^{***}	-0.000^{***}	0.234	0.661	25.310	0.870
		(0.363)	(0.363)	(0.421)	(0.000)				
Cyprus	—	-1.508^{***}	-1.508^{***}	2.429^{***}	-0.000^{**}	1.026	0.989	3.763	0.393
		(0.201)	(0.201)	(0.433)	(0.000)				
Czechia	—	-0.594^{***}	-0.594^{***}	3.876^{***}	0.000^{**}	0.769	0.771	12.712	1.140
		(0.168)	(0.168)	(0.202)	(0.000)				
Denmark	—	-0.816^{**}	-0.816^{**}	0.764^{**}	-0.001^{***}	0.410	1.640	54.953	1.445
		(0.363)	(0.363)	(0.345)	(0.000)				
Estonia	—	-0.743^{***}	-0.743^{***}	1.597^{***}	0.001^{***}	0.510	1.033	17.627	1.186
		(0.190)	(0.190)	(0.415)	(0.000)				
Finland	—	-0.598^{***}	-0.598^{***}	1.612^{***}	-0.000^{***}	0.761	1.077	18.021	1.435
		(0.204)	(0.204)	(0.419)	(0.000)				
France	—	-0.457^{***}	-0.457^{***}	1.036^{***}	-0.001^{***}	1.135	2.412	55.218	2.424
		(0.178)	(0.178)	(0.331)	(0.000)				
Germany	—	-0.892^{***}	-0.892^{***}	1.547^{***}	-0.000^{***}	0.311	0.506	15.752	0.812
		(0.296)	(0.296)	(0.451)	(0.000)				
Greece	—	-0.516^{***}	-0.516^{***}	3.363^{***}	0.000	0.956	0.957	14.149	1.315
		(0.207)	(0.207)	(0.194)	(0.000)				
Hungary	—	-0.443^{***}	-0.443^{***}	0.939^{***}	0.000	1.187	4.019	100.103	3.224
		(0.145)	(0.145)	(0.379)	(0.000)				
Iceland	—	-0.523^{***}	-0.523^{***}	3.193^{***}	0.000	0.936	0.937	8.715	1.295
		(0.130)	(0.130)	(0.423)	(0.000)				
Ireland	—	-0.360^{**}	-0.360^{**}	1.653^{***}	-0.001^{***}	1.596	1.944	27.098	2.534
		(0.190)	(0.190)	(0.505)	(0.000)				
Italy	—	-0.969^{**}	-0.969^{**}	3.171^{***}	0.000^{***}	0.199	0.296	5.510	0.583
		(0.451)	(0.451)	(0.330)	(0.000)				
Kosovo	—	-0.749^{***}	-0.749^{***}	4.227^{***}	0.000^{***}	0.502	0.502	2.067	0.636
		(0.139)	(0.139)	(0.234)	(0.000)				
Latvia	—	-0.347^{***}	-0.347^{***}	1.336^{***}	0.000	1.628	2.872	226.577	3.162
		(0.129)	(0.129)	(0.514)	(0.000)				
Lithuania	—	-0.346^{*}	-0.346^{*}	0.887^{*}	-0.000	1.637	3.587	86.150	3.645
		(0.213)	(0.213)	(0.479)	(0.000)				
Luxembourg	—	-0.939^{***}	-0.939^{***}	2.090^{***}	-0.001^{***}	0.247	0.533	14.891	0.744
		(0.293)	(0.293)	(0.377)	(0.000)				
Malta	—	-0.898^{**}	-0.898^{**}	1.939^{***}	-0.000	0.304	0.565	24.051	0.822
		(0.401)	(0.401)	(0.266)	(0.001)				
Montenegro	—	-0.728^{***}	-0.728^{***}	4.544^{***}	-0.000^{***}	0.532	0.532	1.335	0.636
		(0.142)	(0.142)	(0.438)	(0.000)				
Netherlands	—	-0.976^{***}	-0.976^{***}	6.538^{***}	-0.001^{***}	0.185	0.185	0.190	0.249
		(0.082)	(0.082)	(0.461)	(0.000)				
North Macedonia	—	-0.954^{***}	-0.954^{***}	5.186^{***}	-0.000	0.224	0.224	0.556	0.340
		(0.144)	(0.144)	(0.189)	(0.000)				
Norway	—	-0.553^{***}	-0.553^{***}	2.432^{***}	-0.000^{**}	0.860	0.895	10.538	1.304
		(0.219)	(0.219)	(0.503)	(0.000)				
Poland	—	-0.271^{***}	-0.271^{***}	3.106^{***}	0.000^{***}	2.190	2.207	16.926	2.920
		(0.082)	(0.082)	(0.432)	(0.000)				
Portugal	—	-0.287	-0.287	1.123^{***}	-0.001^{***}	2.053	3.788	65.931	4.106
		(0.414)	(0.414)	(0.469)	(0.000)				
Romania	—	-0.441^{***}	-0.441^{***}	5.941^{***}	0.001^{***}	1.192	1.193	5.783	1.536
		(0.141)	(0.141)	(0.352)	(0.000)				
Serbia	—	-0.637^{***}	-0.637^{***}	3.236^{***}	0.000^{***}	0.684	0.687	5.802	0.968
		(0.167)	(0.167)	(0.328)	(0.000)				
Slovakia	—	-0.529^{***}	-0.529^{***}	3.181^{***}	-0.000^{*}	0.922	1.263	27.847	1.673
		(0.197)	(0.197)	(0.485)	(0.000)				
Slovenia	—	-0.297^{**}	-0.297^{**}	4.202^{***}	-0.000^{***}	1.970	1.970	2.716	2.179
		(0.134)	(0.134)	(0.219)	(0.000)				
Spain	—	-0.628^{***}	-0.628^{***}	2.194^{***}	0.000^{***}	0.701	0.836	21.698	1.263
		(0.207)	(0.207)	(0.359)	(0.000)				
Sweden	—	-0.642^{***}	-0.642^{***}	4.860^{***}	-0.000^{***}	0.675	0.675	1.333	0.795
		(0.211)	(0.211)	(0.338)	(0.000)				
Switzerland	—	-0.330^{**}	-0.330^{**}	1.299^{***}	-0.000	1.730	2.252	35.684	2.898
		(0.153)	(0.153)	(0.380)	(0.000)				
Turkey	—	-0.182^{**}	-0.182^{**}	0.924^{*}	-0.000	3.460	7.466	322.924	7.218
		(0.081)	(0.081)	(0.573)	(0.002)				
United Kingdom	—	-0.291^{**}	-0.291^{**}	1.815^{***}	0.000	2.015	2.430	44.776	3.174
		(0.153)	(0.153)	(0.479)	(0.000)				
United States	—	-0.589^{***}	-0.589^{***}	2.775^{***}	0.000	0.779	0.799	24.858	1.166
		(0.161)	(0.161)	(0.524)	(0.000)				

Notes: Columns (1)-(4) present parameter estimates for the model in equation (1). Columns (6)-(8) present persistence rates at p^{th} percentiles of transition function $F(.)$, while column (9) does so at the mean of $F(.)$.

Table 4: Drivers of International Inflation Comovements: Linear Panel Regressions

Dependent Variable:	**Pooled (1-4)**				**Population-Averaged (5-8)**			
$\ln(\rho^{\pi^i,\pi^*})$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Trade Openness	−0.186	−0.239	−0.169	−0.291	−0.169	−0.164	0.136	0.214
	(0.163)	(0.170)	(0.178)	(0.240)	(0.137)	(0.123)	(0.427)	(0.485)
Financial Openness	0.203***	0.202***	0.260***	0.305***	0.121**	0.113*	0.294**	0.338**
	(0.064)	(0.067)	(0.077)	(0.099)	(0.061)	(0.061)	(0.152)	(0.158)
Relative GDP					−0.079	−0.085		
					(0.050)	(0.057)		
Relative Market Cap.	0.095***	0.090***	0.093***	0.079***	0.044**	0.044**	0.071**	0.084**
	(0.016)	(0.016)	(0.022)	(0.025)	(0.019)	(0.019)	(0.035)	(0.041)
Reserves	−0.007	−0.023	−0.044	−0.049	−0.054	−0.060	−0.060	−0.074
	(0.044)	(0.046)	(0.049)	(0.054)	(0.044)	(0.050)	(0.077)	(0.080)
Exch. Rate Rigidity	0.261***	0.248***	0.196**	0.216**	0.101**	0.095*	0.636*	0.630*
	(0.099)	(0.095)	(0.101)	(0.110)	(0.049)	(0.051)	(0.378)	(0.366)
Uncertainty			0.021***	0.025**			0.011	0.016**
			(0.007)	(0.012)			(0.007)	(0.007)
Geo. Distance	−0.141**	−0.191***	−0.264***	−0.290***	−0.392*	−0.377*	0.293	0.290
	(0.071)	(0.073)	(0.087)	(0.090)	(0.230)	(0.226)	(0.333)	(0.367)
Time dummies	no	yes	no	yes	no	yes	no	yes
R-squared	0.22	0.25	0.24	0.25	0.43	0.43	0.30	0.30
$\overline{\rho}_u$	0.02	0.03	0.01	0.02	0.05	0.03	0.02	0.01
$\overline{\lvert\rho\rvert}_u$	0.17	0.17	0.14	0.16	0.21	0.21	0.17	0.15
CSD_u	0.02	0.00	0.52	0.02	0.00	0.00	0.02	0.14
F-PP_u	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F-PP_u^d	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CIPS_u	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors in parentheses. With the exception of exchange rate rigidity and year dummies, all regressors are in logarithmic form. ρ^{π^i,π^*} is the correlation between country i's (domestic) inflation π^i and international inflation π^*. Population-averaged panel regressions (i.e. pooled feasible generalized least squares (PFGLS) estimators) directly model the error serial correlation structure. u represents corresponding panel regression residual series. CSD_u is the cross section dependence test of Pesaran (2004, 2015) applied to u where the null hypothesis can be interpreted either as that of strict cross section independence (Pesaran, 2004) or weak cross section dependence in the case of relatively large N panels (Pesaran, 2015). $\overline{\rho}_u$ and $\overline{\lvert\rho\rvert}_u$ are the average and average absolute cross-section correlation coefficients obtained from the Pesaran CSD test for u. Null hypothesis of Choi (2001)'s Phillips-Perron Fisher test, $\text{F-PP}_u^{(d)}$, is that all (cross-sectionally demeaned) country residual series u_i contain unit roots. Null hypothesis of Pesaran (2007) test, CIPS_u, is that all panel residual series are non-stationary.

Table 5: Drivers of Idiosyncratic Inflation Gap I: Linear Panel Regressions

Dependent Variable:	**Pooled (1-4)**				**Population-Averaged (5-8)**			
ln(TF)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Trade Openness	−0.427**	−0.548***	−0.662***	−0.559***	−0.320	−0.440*	−0.515*	−0.565***
	(0.208)	(0.225)	(0.254)	(0.219)	(0.264)	(0.280)	(0.311)	(0.223)
Financial Openness	−0.092	−0.146	−0.141	−0.239*	−0.112	−0.154	−0.163	−0.243
	(0.154)	(0.173)	(0.202)	(0.135)	(0.263)	(0.264)	(0.312)	(0.189)
Relative GDP	−0.292***	−0.353***	−0.263*	−0.152***	−0.355**	−0.401***	−0.304*	−0.150***
	(0.119)	(0.146)	(0.159)	(0.054)	(0.163)	(0.169)	(0.187)	(0.062)
Relative Market Cap.	0.064	0.097	0.058		0.127	0.149	0.109	
	(0.072)	(0.091)	(0.093)		(0.106)	(0.108)	(0.118)	
Reserves	−0.011	−0.032	−0.016	−0.044	−0.047	−0.057	−0.055	−0.042
	(0.055)	(0.058)	(0.066)	(0.056)	(0.081)	(0.084)	(0.093)	(0.069)
Exch. Rate Rigidity	−0.335**	−0.372**	−0.382**	−0.557***	−0.374*	−0.396*	−0.430*	−0.547***
	(0.162)	(0.159)	(0.167)	(0.128)	(0.230)	(0.232)	(0.249)	(0.167)
Uncertainty			−0.092*	−0.069*			−0.060*	−0.084*
			(0.054)	(0.040)			(0.030)	(0.052)
Geo. Distance	0.491***	0.374**	0.226	0.104	0.486*	0.400*	0.257	0.095
	(0.174)	(0.181)	(0.250)	(0.237)	(0.268)	(0.236)	(0.312)	(0.272)
Time dummies	no	yes	yes	yes	no	yes	yes	yes
R-squared	0.20	0.20	0.20	0.20	0.48	0.51	0.52	0.30
$\overline{\rho}_u$	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01
$\overline{\lvert\rho\rvert}_u$	0.09	0.09	0.09	0.10	0.09	0.09	0.09	0.10
CSD_u	0.29	0.76	0.45	0.96	0.26	0.38	0.74	0.63
F-PP_u	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F-PP_u^d	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CIPS_u	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors in parentheses. With the exception of the exchange rate rigidity and year dummies, all regressors are in logarithmic form. TF denotes the transition function F(.). Population-averaged panel regressions (i.e. pooled feasible generalized least squares (PFGLS) estimators) directly model the error serial correlation structure. u represents corresponding panel regression residual series. CSD_u is the cross section dependence test of Pesaran (2004, 2015) applied to u where the null hypothesis can be interpreted either as that of strict cross section independence (Pesaran, 2004) or weak cross section dependence in the case of relatively large N panels (Pesaran, 2015). $\overline{\rho}_u$ and $\overline{|\rho|}_u$ are the average and average absolute cross-section correlation coefficients obtained from the Pesaran CSD test for u. Null hypothesis of Choi (2001)'s Phillips-Perron Fisher test, $\text{F-PP}_u^{(d)}$, is that all (cross-sectionally demeaned) country residual series u_i contain unit roots. Null hypothesis of Pesaran (2007) test, CIPS_u, is that all panel residual series are non-stationary.

Table 6: Drivers of Idiosyncratic Inflation Gap II: Logit Panel Regressions

Dependent Variable:	**Pooled (1-4)**				**Population-Averaged (5-8)**			
$\zeta = 1(0)$ if TF$>(\leq)0.5$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A. Odds Ratios								
Trade Openness	−0.558**	−0.626**	−0.620**	−0.430*	−0.744*	−0.782*	−0.937**	−0.550*
	(0.285)	(0.323)	(0.314)	(0.248)	(0.415)	(0.478)	(0.480)	(0.339)
	[0.948]	[0.942]	[0.943]	[0.959]	[0.931]	[0.928]	[0.914]	[0.949]
Financial Openness	−0.595**	−0.508*	−0.547*	−1.215***	−1.183**	−1.201**	−1.157**	−1.590***
	(0.303)	(0.305)	(0.339)	(0.291)	(0.554)	(0.572)	(0.589)	(0.401)
	[0.945]	[0.953]	[0.949]	[0.890]	[0.893]	[0.892]	[0.895]	[0.859]
Relative GDP	−0.301*	−0.390**	−0.236	−0.117*	−0.638***	−0.806***	−0.803***	−0.028
	(0.188)	(0.196)	(0.202)	(0.072)	(0.261)	(0.288)	(0.320)	(0.097)
	[0.972]	[0.963]	[0.978]	[0.988]	[0.941]	[0.926]	[0.926]	[0.997]
Relative Market Cap.	0.003	0.034	−0.014		0.216	0.310*	0.324	
	(0.122)	(0.124)	(0.129)		(0.165)	(0.182)	(0.200)	
	[1.000]	[1.003]	[0.998]		[1.021]	[1.030]	[1.031]	
Reserves	−0.242***	−0.283***	−0.201**	−0.247***	−0.319***	−0.417***	−0.386***	−0.222**
	(0.094)	(0.096)	(0.100)	(0.082)	(0.133)	(0.145)	(0.151)	(0.107)
	[0.977]	[0.973]	[0.981]	[0.976]	[0.970]	[0.961]	[0.964]	[0.979]
Exch. Rate Rigidity	−0.523**	−0.582**	−0.496*	−0.350*	−0.626*	−0.726*	−0.772**	−0.462*
	(0.267)	(0.274)	(0.277)	(0.217)	(0.375)	(0.398)	(0.406)	(0.259)
	[0.593]	[0.559]	[0.609]	[0.705]	[0.535]	[0.484]	[0.462]	[0.630]
Uncertainty			−0.038				−0.042	−0.042
			(0.048)				(0.059)	(0.044)
			[0.996]				[0.996]	[0.996]
Geo. Distance	0.744**	0.700**	0.649*	0.558*	0.465	0.388	0.246	0.193
	(0.349)	(0.351)	(0.391)	(0.318)	(0.466)	(0.492)	(0.534)	(0.465)
	[1.074]	[1.069]	[1.064]	[1.055]	[1.045]	[1.038]	[1.024]	[1.019]
Time dummies	no	yes	yes	yes	no	yes	yes	yes
McFadden's Pseudo R^2	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11
B. Marginal Effects								
Trade Openness	−0.122**	−0.136**	−0.139**	−0.090*	−0.162*	−0.168*	−0.206**	−0.120*
	(0.062)	(0.069)	(0.070)	(0.052)	(0.090)	(0.102)	(0.105)	(0.073)
Financial Openness	−0.131**	−0.110*	−0.122*	−0.255***	−0.257**	−0.258**	−0.254**	−0.345***
	(0.066)	(0.066)	(0.075)	(0.059)	(0.118)	(0.121)	(0.128)	(0.084)
Relative GDP	−0.066*	−0.085**	−0.053	−0.025*	−0.139***	−0.173***	−0.176***	−0.006
	(0.041)	(0.042)	(0.045)	(0.015)	(0.056)	(0.062)	(0.070)	(0.021)
Relative Market Cap.	0.001	0.007	−0.003		0.047	0.067*	0.071	
	(0.027)	(0.027)	(0.028)		(0.036)	(0.039)	(0.044)	
Reserves	−0.053***	−0.061***	−0.045**	−0.052***	−0.069***	−0.090***	−0.085***	−0.048**
	(0.020)	(0.021)	(0.022)	(0.017)	(0.028)	(0.031)	(0.033)	(0.023)
Exch. Rate Rigidity	−0.109**	−0.119**	−0.106**	−0.071*	−0.128*	−0.144**	−0.157**	−0.096**
	(0.052)	(0.052)	(0.056)	(0.041)	(0.070)	(0.072)	(0.075)	(0.051)
Uncertainty			−0.009				−0.009	−0.009
			(0.010)				(0.012)	(0.009)
Geo. Distance	0.163**	0.152**	0.145*	0.117*	0.101	0.084	0.054	0.042
	(0.076)	(0.075)	(0.086)	(0.066)	(0.101)	(0.105)	(0.117)	(0.100)

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors in parentheses. With the exception of the exchange rate rigidity and year dummies, all regressors are in logarithmic form. Panel A reports estimates of effects on log odds while figures in square brackets show corresponding odds ratios in levels for +10 percent changes in regressors (except for dummies). Marginal effects are evaluated at means of regressors i.e. $\frac{\partial p}{\partial x_j}\big|_{\mathbf{x}=\bar{\mathbf{x}}}$ with $p = P(\zeta = 1|\mathbf{x}) = e^{\mathbf{x}'\boldsymbol{\beta}}(1+e^{\mathbf{x}'\boldsymbol{\beta}})^{-1}$. Marginal effects can be approximated from panel A via $\bar{\zeta}(1-\bar{\zeta})\times\beta_j$, where ζ is our binary dependent variable that equals 1 (0) if the transition function, TF, is greater than (less than or equal to) 0.5 and $\bar{\zeta} = 0.7$ is the pooled average value of ζ. Marginal effects evaluated at medians and average marginal effects reflecting averages across evaluations at individual observations are only slightly higher. Population-averaged logit estimator, or generalized estimating equations approach, directly models the error serial correlation structure.

Table 7: Idiosyncratic Inflation Adjustment ϕ^* and Covariates: Cross-Section Correlations

Persistence Variable: $\mathbf{ln(\|1+\phi^*\|)}$	**Pearson** (1)	**Spearman** (2)
Trade Openness	-0.38^{**}	-0.29^{*}
Financial Openness	-0.36^{**}	-0.27^{*}
Relative GDP	-0.30^{*}	-0.16
Relative Market Cap.	-0.20	-0.08
Reserves	0.40^{***}	0.17
Exch. Rate Rigidity	-0.39^{***}	-0.35^{**}
Uncertainty	0.44^{***}	0.33^{*}
Geo. Distance	0.29^{*}	0.29^{*}

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Sample size is $n = 38$. Adjustment coefficient ϕ^* partially gauges the persistence of inflation deviations and within the open interval $(-1, 0)$ is inversely related to the rate at which a given inflation gap dissipates over time. The reported relations are preserved for any given constant $F(.)_{i,t} = c$.

Table 8: Drivers of Idiosyncratic Inflation Persistence: Linear Panel Regressions

Dependent Variable:	**Pooled (1-4)**				**Population-Averaged (5-8)**			
$\ln(\lvert 1+\phi^{*}F(.)\rvert)$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Trade Openness	0.270**	0.380***	0.184	0.138	0.192*	0.252**	0.066	0.090
	(0.116)	(0.128)	(0.149)	(0.183)	(0.119)	(0.128)	(0.144)	(0.134)
Financial Openness	0.271***	0.326***	0.276***	0.190**	0.131	0.190*	0.376**	0.204*
	(0.074)	(0.079)	(0.089)	(0.097)	(0.123)	(0.115)	(0.195)	(0.124)
Relative GDP	−0.085**	−0.079**	−0.076*	−0.022	−0.084	−0.089	−0.200*	0.051
	(0.041)	(0.040)	(0.045)	(0.064)	(0.072)	(0.072)	(0.117)	(0.087)
Relative Market Cap.			−0.092***	−0.109***			−0.153***	−0.185***
			(0.028)	(0.035)			(0.037)	(0.028)
Reserves	0.086***	0.094***	0.051*	0.052*	0.104***	0.103***	0.117***	0.128***
	(0.030)	(0.031)	(0.027)	(0.030)	(0.041)	(0.042)	(0.049)	(0.052)
Exch. Rate Rigidity	−0.393***	−0.389***	−0.482***	−0.450***	−0.301***	−0.302***	−0.476***	−0.468***
	(0.055)	(0.058)	(0.083)	(0.089)	(0.102)	(0.106)	(0.142)	(0.116)
Uncertainty	0.004	0.020*	0.016*	0.044	−0.013	0.016**	−0.007	−0.011
	(0.009)	(0.011)	(0.009)	(0.042)	(0.010)	(0.006)	(0.007)	(0.010)
Geo. Distance	0.394***	0.480***	0.417***	0.409***	0.440***	0.497***	0.487***	0.557***
	(0.126)	(0.129)	(0.124)	(0.115)	(0.135)	(0.140)	(0.152)	(0.135)
Time dummies	no	yes	no	yes	no	yes	no	yes
R-squared	0.20	0.20	0.20	0.21	0.20	0.20	0.54	0.56
$\overline{\rho}_u$	0.01	0.00	0.01	0.01	0.01	0.17	0.01	0.07
$\overline{\lvert\rho\rvert}_u$	0.12	0.12	0.11	0.11	0.14	0.19	0.13	0.13
CSD_u	0.22	0.43	0.27	0.37	0.01	0.00	0.55	0.00
F-PP_u	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F-PP_u^d	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CIPS_u	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors in parentheses. With the exception of the exchange rate rigidity and year dummies, all regressors are in logarithmic form. $\phi^{*}F(.)$ is the effective adjustment coefficient. Transition function $F(.)$ measures the size of the deviation from international inflation while adjustment coefficient $\phi^{*} \in (-1,0)$ is inversely related to the rate at which a given inflation gap dissipates over time. Population-averaged panel regressions (i.e. pooled feasible generalized least squares (PFGLS) estimators) directly model the error serial correlation structure. u represents corresponding panel regression residual series. CSD_u is the cross section dependence test of Pesaran (2004, 2015) applied to u where the null hypothesis can be interpreted either as that of strict cross section independence (Pesaran, 2004) or weak cross section dependence in the case of relatively large N panels (Pesaran, 2015). $\overline{\rho}_u$ and $\overline{\lvert\rho\rvert}_u$ are the average and average absolute cross-section correlation coefficients obtained from the Pesaran CSD test for u. Null hypothesis of Choi (2001)'s Phillips-Perron Fisher test, $\text{F-PP}_u^{(d)}$, is that all (cross-sectionally demeaned) country residual series u_i contain unit roots. Null hypothesis of Pesaran (2007) test, CIPS_u, is that all panel residual series are non-stationary.

Table 9: Robustness I: Comovements, Gaps, and Inertia with Common Full Set of Regressors

Dependent Variable:	(1) **Com.**	(2) **Gap**	(3) **Inertia**
Trade Openness	−0.156	−0.469**	0.224*
	(0.150)	(0.227)	(0.131)
Financial Openness	0.167**	−0.105	0.278*
	(0.076)	(0.254)	(0.155)
GDP per capita	0.266***	0.167	−0.101
	(0.077)	(0.167)	(0.099)
Relative Market Cap.	0.044*	−0.110**	−0.092***
	(0.027)	(0.057)	(0.033)
Reserves	−0.030	0.007	0.042
	(0.032)	(0.069)	(0.042)
Exch. Rate Rigidity	0.175**	−0.367*	−0.498***
	(0.087)	(0.210)	(0.124)
Uncertainty	0.020**	−0.100*	0.070**
	(0.010)	(0.060)	(0.035)
Geo. Distance	−0.182*	0.237	0.395***
	(0.111)	(0.257)	(0.128)
Time dummies	no	no	no
R-squared	0.30	0.20	0.20
$\overline{\rho}_u$	0.00	0.01	0.00
$\overline{\lvert\rho\rvert}_u$	0.13	0.08	0.11
CSD_u	0.62	0.39	0.93
F-PP_u	0.00	0.00	0.00
F-PP_u^d	0.00	0.00	0.00
CIPS_u	0.00	0.00	0.00

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. SUR system composed of linear panel specifications is estimated by FGLS, equivalent to pooled OLS equation-by-equation estimation. Robust standard errors in parentheses. Comovement (Com.) is $\ln(\rho^{\pi^i,\pi^*})$, where ρ^{π^i,π^*} is the correlation between country i's (domestic) inflation π^i and international inflation π^*. Gap is $\ln(F(.))$, where the transition function $F(.)$ is a standardized measure of deviations from international inflation. Inertia is $\ln(|1+\phi^*F(.)|)$, where $\phi^*F(.)$ is the effective rate of adjustment of inflation deviations with adjustment coefficient $\phi^* \in (-1,0)$ positively linked to the persistence of a given gap. With the exception of the exchange rate rigidity dummy, all regressors are in logarithmic form. u represents corresponding panel regression residual series. CSD_u is the cross section dependence test of Pesaran (2004, 2015) applied to u where the null hypothesis can be interpreted either as that of strict cross section independence (Pesaran, 2004) or weak cross section dependence in the case of relatively large N panels (Pesaran, 2015). $\overline{\rho}_u$ and $\overline{\lvert\rho\rvert}_u$ are the average and average absolute cross-section correlation coefficients obtained from the Pesaran CSD test for u. Null hypothesis of Choi (2001)'s Phillips-Perron Fisher test, $\text{F-PP}_u^{(d)}$, is that all (cross-sectionally demeaned) country residual series u_i contain unit roots. Null hypothesis of Pesaran (2007) test, CIPS_u, is that all panel residual series are non-stationary.

Table 10: Robustness II: Comovements, Gaps, and Inertia with Central Bank Independence

Dependent Variable:	(1) **Com.**	(2) **Gap**	(3) **Inertia**
Trade Openness	−0.155	−0.509**	0.213*
	(0.152)	(0.233)	(0.134)
Financial Openness	0.166**	−0.093	0.288**
	(0.076)	(0.257)	(0.157)
GDP per capita	0.275***	0.187	−0.094
	(0.077)	(0.169)	(0.099)
Relative Market Cap.	0.043*	−0.118**	−0.096***
	(0.027)	(0.058)	(0.034)
Reserves	−0.028	0.016	0.046
	(0.033)	(0.071)	(0.043)
Exch. Rate Rigidity	0.172*	−0.423**	−0.522***
	(0.097)	(0.225)	(0.134)
Uncertainty	0.020**	−0.100*	0.067**
	(0.010)	(0.058)	(0.035)
Geo. Distance	−0.171*	0.252	0.404***
	(0.110)	(0.258)	(0.129)
Central Bank Indep.	0.061	0.284	0.119
	(0.191)	(0.378)	(0.228)
Time dummies	no	no	no
R-squared	0.30	0.20	0.20
$\overline{\rho}_u$	0.01	0.01	0.00
$\overline{\lvert\rho\rvert}_u$	0.13	0.09	0.11
CSD_u	0.32	0.44	0.93
F-PP_u	0.00	0.00	0.00
F-PP_u^d	0.00	0.00	0.00
CIPS_u	0.00	0.00	0.00

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. SUR system composed of linear panel specifications is estimated by FGLS, equivalent to pooled OLS equation-by-equation estimation. Robust standard errors in parentheses. Comovement (Com.) is $\ln(\rho^{\pi^i,\pi^*})$, where ρ^{π^i,π^*} is the correlation between country i's (domestic) inflation π^i and international inflation π^*. Gap is $\ln(F(.))$, where the transition function $F(.)$ is a standardized measure of deviations from international inflation. Inertia is $\ln(|1+\phi^* F(.)|)$, where $\phi^* F(.)$ is the effective rate of adjustment of inflation deviations with adjustment coefficient $\phi^* \in (-1,0)$ positively linked to the persistence of a given gap. With the exception of the exchange rate rigidity dummy, all regressors are in logarithmic form. u represents corresponding panel regression residual series. CSD_u is the cross section dependence test of Pesaran (2004, 2015) applied to u where the null hypothesis can be interpreted either as that of strict cross section independence (Pesaran, 2004) or weak cross section dependence in the case of relatively large N panels (Pesaran, 2015). $\overline{\rho}_u$ and $\overline{|\rho|}_u$ are the average and average absolute cross-section correlation coefficients obtained from the Pesaran CSD test for u. Null hypothesis of Choi (2001)'s Phillips-Perron Fisher test, $\text{F-PP}_u^{(d)}$, is that all (cross-sectionally demeaned) country residual series u_i contain unit roots. Null hypothesis of Pesaran (2007) test, CIPS_u, is that all panel residual series are non-stationary. CBI data source: https://cbidata.org/.

Table 11: Robustness III: Comovements, Gaps, and Inertia with Monetary Policy (MP) Inflation Target

Dependent Variable:	(1) **Com.**	(2) **Gap**	(3) **Inertia**
Trade Openness	−0.209	−0.620***	0.213*
	(0.155)	(0.237)	(0.132)
Financial Openness	0.206***	−0.014	0.157
	(0.086)	(0.264)	(0.162)
GDP per capita	0.108	0.233	−0.078
	(0.082)	(0.173)	(0.100)
Relative Market Cap.	0.063**	−0.123**	−0.066**
	(0.027)	(0.059)	(0.033)
Reserves	0.057*	−0.004	0.057
	(0.033)	(0.070)	(0.041)
Exch. Rate Rigidity	0.401***	−0.279	−0.480***
	(0.074)	(0.214)	(0.124)
Uncertainty	0.018*	−0.047	0.065*
	(0.010)	(0.059)	(0.035)
Geo. Distance	−0.313**	−0.172	0.830***
	(0.161)	(0.453)	(0.190)
MP Inflation Target	−0.095**	0.154*	0.042
	(0.045)	(0.095)	(0.060)
Time dummies	no	no	no
R-squared	0.30	0.20	0.20
$\overline{\rho}_u$	0.02	0.00	0.00
$\overline{\lvert\rho\rvert}_u$	0.14	0.09	0.11
CSD_u	0.03	0.86	0.65
F-PP_u	0.00	0.00	0.00
F-PP_u^d	0.00	0.00	0.00
CIPS_u	0.00	0.00	0.00

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. SUR system composed of linear panel specifications is estimated by FGLS, equivalent to pooled OLS equation-by-equation estimation. Robust standard errors in parentheses. Comovement (Com.) is $\ln(\rho^{\pi^i,\pi^*})$, where ρ^{π^i,π^*} is the correlation between country i's (domestic) inflation π^i and international inflation π^*. Gap is $\ln(F(.))$, where the transition function $F(.)$ is a standardized measure of deviations from international inflation. Inertia is $\ln(|1+\phi^* F(.)|)$, where $\phi^* F(.)$ is the effective rate of adjustment of inflation deviations with adjustment coefficient $\phi^* \in (-1,0)$ positively linked to the persistence of a given gap. With the exception of the exchange rate rigidity dummy, all regressors are in logarithmic form. u represents corresponding panel regression residual series. CSD_u is the cross section dependence test of Pesaran (2004, 2015) applied to u where the null hypothesis can be interpreted either as that of strict cross section independence (Pesaran, 2004) or weak cross section dependence in the case of relatively large N panels (Pesaran, 2015). $\overline{\rho}_u$ and $\overline{|\rho|}_u$ are the average and average absolute cross-section correlation coefficients obtained from the Pesaran CSD test for u. Null hypothesis of Choi (2001)'s Phillips-Perron Fisher test, $\text{F-PP}_u^{(d)}$, is that all (cross-sectionally demeaned) country residual series u_i contain unit roots. Null hypothesis of Pesaran (2007) test, CIPS_u, is that all panel residual series are non-stationary. MP inflation target measures annually the log volatility (standard deviation) of monthly year-on-year inflation around the central bank target.