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RESEARCH PAPER

Understanding Inflation Dynamics: A Comparative Study of Pakistan, India, Bangladesh, and Sri Lanka

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ABSTRACT

The study examines the link between inflation and inflation uncertainty in South Asia, focusing on Pakistan, India, Bangladesh, and Sri Lanka. Inflation erodes purchasing power and raises uncertainty that discourages investment. Policymakers require evidence on persistence and asymmetric responses. CPI annual series (1995-2024) from the World Bank were tested for stationarity and modeled with ARCH, GARCH, and EGARCH to capture volatility clustering and asymmetry. Directionality was assessed with Granger causality. The results show that inflation has persistence across all four economies; India's lag term is highly significant. Pakistan's dynamics are best captured by EGARCH (1,1) with asymmetry. Sri Lanka and Bangladesh show volatility clustering and leverage effects; EGARCH fits Sri Lanka best, while Bangladesh exhibits weaker Policymakers should prioritize disinflation via credible monetary anchors and fiscal discipline, alongside targeted safety nets.

KEYWORDS Inflation, Inflation Uncertainty, South Asia, ARCH/GARCH Models, Granger causality, Friedman–Ball Hypothesis

Introduction

Inflation has long been recognized as one of the most challenging macroeconomic problems faced by nations across the globe. At its simplest, inflation refers to the continuous and general increase in the prices of goods and services. While both advanced and developing economies experience inflation, its consequences are far more severe in developing countries. In these economies, inflation not only reduces purchasing power and savings but also threatens social welfare, undermines growth prospects, and complicates policy management (Nupur et al., 2023). For South Asian countries in particular, inflation has become a recurring issue, reflecting structural weaknesses in their economies such as dependence on imports, low productivity, and fragile financial institutions (Abedin, 2025).

Closely tied to the phenomenon of inflation is inflation uncertainty, which refers to the unpredictability of future price movements. In such situations, households, firms, and policymakers remain unsure whether inflation will rise, fall, or remain stable in the near or long term. This uncertainty discourages long-term contracts, reduces investment, and generates anxiety among consumers who struggle to plan their expenditures. Inflation often arrives in irregular and unexpected ways, leaving the public uncertain about the future direction of prices (Binder, Ozturk, & Sheng, 2025). Economists have long debated the link between inflation and inflation uncertainty. Friedman famously argued that higher inflation generates greater uncertainty, which distorts the price mechanism and ultimately reduces welfare. When prices do not reflect accurate signals, the efficient allocation of resources is disrupted, and markets lose their capacity to promote growth (Brunner & Meltzer, 1972; Pervaiz, Manzoor, Gull, & Umar, 2024). Many empirical studies have examined this relationship using time-series analysis, with most results confirming that higher inflation rates usually bring greater unpredictability about future inflation and policy direction (Coibion & Gorodnichenko, 2025).

The connection between inflation and its uncertainty has been one of the most debated issues in economics. In countries with persistent inflation, both households and businesses dedicate large resources to predicting price movements. Although such efforts may reduce some of the unpredictability, uncertainty cannot be entirely removed. Instead, it often shapes inflationary patterns in complex ways. In fact, uncertainty can become a driver of inflation. When people are unsure about future prices, policymakers may resort to short-term expansionary measures to stimulate growth. These actions, however, frequently backfire, increasing inflation as well as the uncertainty surrounding it, thereby creating a self-reinforcing cycle (Brandão-Marques, Meeks, & Nguyen, 2024).

Inflation is a serious challenge in developing countries. It continues not only because of monetary issues but also due to deep social and economic problems like poverty, unemployment, and low literacy (Gull, Pervaiz, Manzoor, & Mujaddad, 2025). Moreover, it is also observed that the impact of rising prices is not equally shared by all the people in a country. Unfortunately, the vulnerable households bear a proportionately higher burden of inflation. Because the poor and unemployed individuals allocate a larger proportion of their income towards essential items such as food and energy, therefore, they are badly impacted by rising inflation in the country. Similarly, low literacy also plays an important role as a hurdle in people's understanding of financial risks and opportunities which evolve due to inflation. Such people are not able to adjust their spending patterns or seek better options during periods of inflation. In other words, the dual burden of economic pressure and limited financial knowledge are major reasons behind people's failure to make effective decisions to improve their situation. Finally, this dual challenge often traps them in a persistent cycle of hardship that is difficult to escape (O'Donoghue et al., 2025; Pervaiz & Manzoor, 2025).

The developing countries have suitable conditions to easily fall into the persistent trap of poverty, economic pressure, low literacy, inability to tackle inflation and so on. Therefore, it is observed that inflation places a heavier burden on developing economies as compared with advanced countries. The developing countries have weaker institutional capacity and limited social protection systems, and they have to greatly depend on imported goods; these are the likely reasons behind the deferential response of these countries to rising prices. The policymakers have a big challenge under such circumstances. They need to steer the economy in such a way that the inflation is under strict control and economic growth or employment is also not compromised (World Bank Group, 2024).

South Asia is the most suitable region to explore the dynamics of inflation. The four South Asian countries i.e., Pakistan, India, Sri Lanka, and Bangladesh, differ in their economic capacity and structure; however, they have similar underlying vulnerabilities that expose them to strong inflationary pressures. The common characteristics of these countries make the cross-country comparisons particularly meaningful in the context of inflation and uncertainty. For example, they all face large populations and high dependence on agricultural output. Therefore, the population in these countries is often affected by climate variability and exposed to external shocks such as global oil price fluctuations. In recent years, Pakistan, India, Sri Lanka, and Bangladesh have experienced weakening economic growth and accelerating inflation. This troubling combination undermines macroeconomic stability, and it is difficult to progress toward long-term development and poverty reduction on a sustainable basis. The inflation uncertainty in these countries takes its toll by discouraging domestic businesses from expanding and deterring foreign investors from committing capital. These dynamics in developing countries create a persistent cycle that threatens both immediate economic recovery and sustainable growth in the region.

Against this backdrop, the instant study aims at examining inflation and inflation uncertainty across four South Asian economies: Pakistan, India, Sri Lanka, and Bangladesh. The comparative analysis is meant to uncover both the common elements that shape inflationary experiences in these countries and the differences in how policymakers respond. Because the inflation uncertainty is context dependent, the cross-country analysis gives an insight to understand how it influences growth, investment, and stability in the long run. By extending the instant analysis within a regional framework in place of a single country offer, it offers a broader understanding of how developing economies in South Asia confront inflationary challenges.

Literature Review

A vast body of empirical literature has examined the intricate relationship between inflation and inflation uncertainty. The researchers have usually employed advanced econometric techniques such as GARCH, EGARCH, and their extensions for the analysis of dynamics of inflation. The variable of inflation rarely acts alone as it has been suggested by various important studies in the literature. Inflation contributes to economic volatility and uncertainty. The relationship between inflation and inflation uncertainty has been observed in both developed and developing economies, however, the intensity of this association may vary with institutional structures, policy frameworks, and external shocks. Such characteristics are typical of developing economies.

In this context an important study was undertaken by Bamanga et al. (2016). They analyzed the monthly data from 1960 to 2014 of Nigeria using GARCH and EGARCH models alongside seasonal ARIMA specifications. They demonstrated that inflation significantly contributed to inflation uncertainty in Nigeria. The results of the bivariate Granger causality tests provided strong evidence that inflation served as a key source of instability in the economic expectations of the country. This finding supported the view that when inflation rises, it directly results in uncertainty, thereby complicating the task of predicting future price movements and shaping economic behavior. This finding, therefore, confirmed the universality of the Friedman–Ball hypothesis. Similarly, the research in South Asian countries also supported this link. For example, Javed, Khan, Haider, and Shaheen (2012) investigated Pakistan using monthly CPI data from 1957 to 2007. They employed econometric technique of ARMA-GARCH framework. Their findings showed that inflation in Pakistan strongly influenced uncertainty, and thereby validated Friedman's hypothesis in the Pakistani context. This result matters because Pakistan has dealt with inflation for years, not just from money supply issues but also from deep problems like budget deficits and sudden supply shocks. These conditions mean that whenever inflation rises, uncertainty naturally follows.

The dynamics of Iran were studied by Samimi and Shahryar (2009). They employed MGARCH and FIML techniques on data from 1979 to 2007, sourced from the

Central Bank of Iran. They concluded that a positive and significant relationship was present between inflation and both its mean and variance. These findings established that inflation Granger-caused uncertainty and again reinforced Friedman's view. Another related study by Eregha and Ndoricimpa (2019) in the context of Nigeria also confirmed these findings. They used FIML and GARCH-in-mean approach and highlighted that growth uncertainty also shaped inflation behavior. More recent work by Nilchi, Momenzade, and Farhadian (2024) introduced the idea of asymmetry by applying TGARCH and EGARCH models to Iranian data from 1990 to 2011. Their results revealed that positive shocks had a stronger effect on inflation uncertainty than negative shocks. These asymmetric dynamics highlighted that the cost of inflation was not uniform. The economies may be more vulnerable to sudden increases in inflation than to disinflationary episodes.

Turkey provided another example of the intricate relationship between inflation and uncertainty. Karahan (2012), examined Turkish economy's data from 2002 to 2011 and demonstrated that inflation heightened inflation uncertainty. These findings also suggested that instability in governance structures can worsen the economic consequences of inflation. It was concluded that this effect was magnified by the political and institutional weaknesses present in Turkey. Saatcioğlu and Korap (2009) reinforced this perspective about Turkish economy by showing that seasonality in monthly CPI data strongly affected uncertainty. Positive shocks in the economy of Turkey produced greater inflationary uncertainty than negative ones. Taken together, the literature suggested that the inflation–uncertainty link was affected by both statistical correlations and political economy factors. Policy credibility, transparency, and institutional capacity weakened the relationship between inflation and uncertainty.

The empirical evidence from developed economies further broadens this debate. The accurate forecasting and stable long-term monetary dynamics in the analysis were found to be equally important in mitigating uncertainty due to inflation. Viorica, Jemna, Pintilescu, and Asandului (2014) examined EU countries from 1990-2012. They observed that inflation uncertainty was strongly related to squared forecast errors. They concluded that agents (forecasters, firms, households) faced a noisier inflation process due to structural shifts, frequent supply shocks, or weak policy credibility. Their analysis stressed the importance of expectations management. The findings of Krüger and Nolte (2016) reinforced this argument in the context of United States by showing that errors in past forecasts played a significant role in shaping current uncertainty. Their work highlighted that when monetary authorities lacked credibility or failed to communicate effectively, uncertainty about inflation grew and it made the policy outcomes less predictable for the people. Similarly, Barnett, Jawadi, and Ftiti (2020) conducted a cross country analysis of the US, the UK, the euro area, South Africa, and China. They linked long-run money growth to inflation uncertainty and concluded that inflation uncertainty ultimately harmed employment and output in these countries.

Overall, the literature demonstrates a robust and recurring pattern: inflation and inflation uncertainty are closely intertwined across different economic and political contexts. The evidence highlights three key points. First, inflation uncertainty is not just a statistical byproduct but a structural outcome of persistent inflation. Second, institutional and political conditions play a significant role in shaping this relationship, as seen in Turkey and Iran. Third, asymmetries exist—positive inflationary shocks often have larger effects on uncertainty than negative ones, complicating policy responses. However, gaps remain. Much of the empirical work is country-specific, often focused on advanced economies or single developing nations, leaving limited comparative insights for regions such as South Asia. Few studies integrate cross-country comparisons using consistent methodologies, which makes it difficult to draw regional conclusions. Moreover, the literature has not fully incorporated the role of globalization, commodity price shocks, or policy regimes such as inflation targeting in shaping inflation uncertainty in emerging markets.

Against this backdrop, the present study contributes by conducting a comparative analysis of four South Asian economies—Pakistan, India, Sri Lanka, and Bangladesh. By examining inflation and inflation uncertainty together, this study not only extends the literature but also addresses the gap of regional evidence. The analysis sheds light on whether these economies, which share structural similarities yet differ in institutional capacity, exhibit comparable inflation–uncertainty dynamics.

Methodology

We study Pakistan, India, Bangladesh, and Sri Lanka over 1995–2024 using World Development Indicators. Inflation (π_t) is computed as the annual percentage change in the price index (P_t):

$$\pi_t = 100 \times \Delta ln(P_t) \quad ------ \quad (i)$$

The consumer price index (CPI) was used for measurement of inflation. Basic diagnostics include descriptive statistics, Jarque–Bera for normality, and the Brown–Forsythe test for heteroskedasticity. Stationarity is examined with ADF tests. As in many emerging markets, inflation levels are often non-stationary while growth rates are stationary, which motivates volatility modeling.

Before estimation, the stationarity of each inflation series was checked using the Augmented Dickey–Fuller (ADF) test, while the Brown and Forsythe test confirmed the presence of heteroskedasticity (Brown & Forsythe, 1974). Evidence of volatility justified the use of ARCH-family models. Accordingly, ARCH, GARCH, and EGARCH were employed to capture persistence, volatility clustering, and asymmetric effects in inflation dynamics. ARCH and GARCH are suitable for modeling symmetric shocks, whereas EGARCH accounts for asymmetry, recognizing that inflationary shocks may increase uncertainty more than disinflationary ones. The choice of ARCH-family models over simpler methods such as OLS or VAR was motivated by the nature of inflation data in developing economies. OLS assumes constant error variance, which is unrealistic where frequent structural breaks and supply shocks occur. VAR captures interdependence but does not model conditional variance. In contrast, ARCH and its extensions explicitly account for time-varying volatility, making them more suitable for measuring inflation uncertainty. The mean equation is as under:

$$\pi_t = \mu + \varepsilon_t \quad ------ \quad (ii)$$

$$\varepsilon_t \mid \Omega_{t-1} \sim N(0, h_t) \quad ------ \quad (iii)$$

Similarly, the variance equation can be written as under:

$$h_t = \alpha_0 + \sum_{i=1}^{q} \alpha_i \varepsilon_{t-i}^2 \quad ------ \quad (iv)$$

Where π_t is the inflation rate, h_t is the conditional variance (inflation uncertainty), and ε_t is residual.

The Generalized ARCH (GARCH) model extends ARCH by allowing past conditional variances to also influence current variance (Engle & Bollerslev, 1986): t|Ωt−1 ~N(0,ht)

$$h_t = \alpha_0 + \sum_{i=1}^{q} \alpha_i \varepsilon_{t-i}^2 + \sum_{j=1}^{p} \beta_j h_{t-j} \qquad ------- (v)$$

Here, the ARCH term $\alpha_i \varepsilon_{t-i}^2$ captures short-run shock effects, while the GARCH term $\beta_j h_{t-j}$ reflects the persistence of volatility over time.

The Exponential GARCH (EGARCH) model accounts for asymmetries in the effect of shocks (Nelson, 1991). Unlike standard GARCH, EGARCH models the logarithm of conditional variance, removing the need for non-negativity constraints.

$$ln(h_{t-1}) = \omega + \beta \ln(h_{t-1}) + \alpha\left(\frac{|\varepsilon_{t-1}|}{\sqrt{h_{t-1}}}\right) + \Upsilon\left(\frac{\varepsilon_{t-1}}{\sqrt{h_{t-1}}}\right) \qquad ------- (vi)$$

Here, α is magnitude of shocks, β is the volatility persistence, ϒ is asymmetry (leverage effect). If $\Upsilon \neq 0$, positive and negative shocks affect inflation uncertainty differently. A positive ϒ indicates that inflationary shocks increase uncertainty more strongly than disinflationary shocks.

All estimations were carried out in EViews 9. The ARCH-family models were first estimated to capture persistence, clustering, and asymmetries in inflation. In addition, the Granger causality test was applied to examine whether inflation Granger-causes uncertainty or vice versa (Granger, 1969). Evidence of bidirectional causality would suggest a feedback loop, while unidirectional causality would highlight the stronger role of one variable. This combination of volatility modeling and causality testing provides a comprehensive view of the inflation–uncertainty relationship in the four South Asian economies. Following the hypotheses were tested:

Hypothesis 1

H_{01}: Inflation does not Granger-cause inflation uncertainty.
H_{11}: Inflation Granger-causes inflation uncertainty.

Hypothesis 2

H_{02}: Inflation uncertainty does not Granger-cause inflation.
H_{12}: Inflation uncertainty Granger-causes inflation.

Results and Discussion

Table 1
Summary of inflation (1995–2024)

Statistic	BCPI	PCPI	IWHI	SCPI
Mean	6.2039	8.5712	72.9648	9.5827
Median	6.0985	8.4475	65.5891	8.8712
Maximum	11.2794	20.4872	128.4267	22.7815
Minimum	2.1385	2.6118	26.2084	3.2481

Std. Dev.	2.2816	4.1623	33.1147	4.8921
Skewness	0.0618	0.5821	0.4569	1.0375
Kurtosis	2.6548	3.6225	2.0849	3.7148
Jarque-Bera	0.1125	1.8761	2.1137	3.4186
Probability	0.9432	0.3927	0.3614	0.0684

The summary statistics as given in Table 1 showed that IWHI recorded the highest average inflation (72.9648) with large volatility, while BCPI and PCPI had much lower means of 6.2039 and 8.5712. SCPI averaged 9.5827 and displayed moderate variation. Maximum values indicated that inflation peaked sharply in IWHI (128.4267), compared to lower peaks in the other indices. Skewness and kurtosis suggested near-normal distributions, except SCPI and PCPI, which were more peaked and right-skewed. The Jarque-Bera test confirmed normality for BCPI, PCPI, and IWHI, while SCPI showed marginal non-normality.

Table 2
Augmented Dickey Fuller (ADF)

Variables	Intercept	Intercept and trend
Pakistan	-2.945872 (0.2285)	-3.618274 (0.4632)
Δ Pakistan	-2.992406*** (0.0000)	---
India	-2.951821 (0.9784)	-3.582149 (0.7465)
Δ India	-2.988725** (0.0214)	---
Bangladesh	-2.961438*** (0.0092)	---
Sri Lanka	-2.983572**(0.0127)	---

Note: * P ≤1%, ** P ≤5%, * P ≤10

The ADF results of Table 2 indicate that the inflation series for Pakistan and India were non-stationary at level, as the test statistics were insignificant under both intercept and trend specifications. However, the first differences for Pakistan and India became significant at the 1% and 5% level respectively, confirming stationarity. Meanwhile, Bangladesh and Sri Lanka appeared to be stationary at level with significance at the 1% and 5% levels, respectively.

Table 3
Estimated ARCH and EGARCH Model Results for Inflation in Pakistan

Variables	GARCH(1,1)				EGARCH(1,1)			
	Coefficient	SE	Z-stat	p-value	Coefficient	SE	Z-stat	p-value
Panel A: Mean Equation								
Constant	3.2954	3.0712	1.0731	0.2837	3.0157	0.1428	21.1158	0.0000
Inf(-1)	0.5342	0.3359	1.5894	0.1123	0.5187	0.0159	34.9276	0.0000
Panel B: Variance Equation ((EGARCH(1,1))								
ARCH(α1)	11.4821	2.5273	4.5437	0.0000	2.9183	2.4831	1.1747	0.2400
GARCH(β1)	0.0691	0.0103	6.7324	0.0000	-2.4879	0.0184	-135.8245	0.0000
Leverage (γ)	–	–	–	–	-0.2417	0.4021	-0.6018	0.5487
Asymmetry (θ)	–	–	–	–	0.4281	0.1279	3.3462	0.0005
Model Fit								
AIC	5.1582				4.4917			
SBC	5.3498				4.7812			

Table 3 presents the estimated results for Pakistan under the GARCH(1,1) and EGARCH(1,1) specifications. In the GARCH(1,1) model, the lagged inflation term is not statistically significant ($p = 0.1123$), suggesting no strong persistence in inflation at the mean level. However, the variance equation indicates pronounced volatility clustering: both the ARCH (α1) and GARCH (β1) parameters are highly significant, confirming that past shocks and past variances strongly affect current inflation volatility. In contrast, the EGARCH(1,1) model provides a better overall fit, with lower AIC (4.49) and SBC (4.78) values compared to GARCH. The lagged inflation term in the mean equation is highly significant (p = 0.0000), indicating strong persistence in inflation when asymmetries are accounted for. Within the variance equation, the ARCH (α1) term is not significant, while the GARCH (β1) parameter is highly significant, implying strong volatility persistence. The leverage (γ) effect is not significant, but the asymmetry parameter (θ) is significant, confirming that positive and negative shocks affect inflation volatility differently. Overall, the EGARCH(1,1) model outperforms GARCH(1,1) by capturing both persistence in inflation and asymmetry in volatility, making it more suitable for explaining Pakistan's inflation dynamics.

Table 4
Estimated ARCH and EGARCH Model Results for Inflation in India

Variables	GARCH(1,1)				EGARCH(1,1)			
	Coefficient	SE	Z-stat	p-value	Coefficient	SE	Z-stat	p-value
Panel A: Mean Equation								
Constant	2.3764	0.3297	7.2068	0.0000	2.9128	0.2362	12.3371	0.0000
Inf(-1)	1.0325	0.0019	542.6631	0.0000	1.0117	0.0012	909.4826	0.0000
Panel B: Variance Equation ((EGARCH(1,1))								
ARCH(α1)	0.2186	0.0161	-13.5653	0.0000	0.7428	0.0394	18.8495	0.0000
GARCH(β1)	0.0298	0.0217	-12.7629	0.0000	-0.8264	0.1276	-16.2435	0.0000
Leverage (γ)	–	–	–	–	0.1726	0.5628	0.3066	0.7594
Asymmetry (θ)	–	–	–	–	1.0428	0.1714	6.0827	0.0000
Model Fit								
AIC	4.0378				3.9621			
SBC	4.2739				4.2416			

The estimated parameters of inflation models in India are showed in Table 4. The results showed that lagged inflation was highly significant in both the GARCH(1,1) and EGARCH(1,1) models, confirming strong persistence in inflation. In the variance equation, all key parameters were significant, highlighting the presence of volatility clustering. The EGARCH model produced lower AIC (3.96) and SBC (4.24) values than the GARCH model, indicating a better fit. Moreover, EGARCH captured asymmetric effects, suggesting that inflation shocks had differing impacts depending on their direction. Overall, EGARCH(1,1) provided a superior explanation of inflation dyna

Table 5
Estimated ARCH and EGARCH Model Results for Inflation in Bangladesh

Variables	GARCH(1,1)				EGARCH(1,1)			
	Coefficient	SE	Z-stat	p-value	Coefficient	SE	Z-stat	p-value
Panel A: Mean Equation								
Constant	4.7854	0.7261	6.5912	0.0000	3.5617	0.9412	3.7826	0.0002
Inf(-1)	0.2081	0.1139	1.8265	0.0679	0.4029	0.1698	2.3735	0.0176
Panel B: Variance Equation (EGARCH(1,1))								
ARCH(α1)	2.3185	1.4017	1.6534	0.0983	1.8621	1.0374	1.7958	0.0729
GARCH(β1)	0.2742	0.0921	-2.9758	0.0029	0.4763	0.7816	0.6092	0.5416
Leverage (γ)	–	–	–	–	0.6127	0.3128	1.9584	0.0503
Asymmetry (θ)	–	–	–	–	0.8032	0.2218	3.6215	0.0004
Model Fit								
AIC	4.6124				4.7158			
SBC	4.8593				4.9932			

The GARCH(1,1) model for Bangladesh (Table 5) showed that lagged inflation was positive but only weakly significant at the 10% level, while in the EGARCH(1,1) model it became significant at the 5% level, confirming persistence in inflation. In the variance equation, the ARCH and GARCH terms were significant under the standard model, while EGARCH captured additional asymmetric effects, though not all were significant. Model comparison based on AIC and SBC indicated that GARCH provided a slightly better fit than EGARCH. Overall, the results suggested that inflation in

Bangladesh exhibited persistence and volatility clustering, with some evidence of asymmetry.

Table 6
Estimated Coefficient of Inflation in Case of Sri Lanka

Variables	GARCH(1,1)				EGARCH(1,1)			
	Coefficient	SE	Z-stat	p-value	Coefficient	SE	Z-stat	p-value
Panel A: Mean Equation								
Constant	6.6921	1.1427	5.8543	0.0000	3.2514	0.1416	22.9547	0.0000
Inf(-1)	0.2894	0.0928	2.9391	0.0032	0.6951	0.0237	29.3172	0.0000
Panel B: Variance Equation ((EGARCH(1,1))								
ARCH(α1)	19.1384	8.6932	2.2027	0.0275	3.0625	0.1851	16.5489	0.0000
GARCH(β1)	0.3567	0.1334	2.6728	0.0076	-2.0713	0.0161	-128.3921	0.0000
Leverage (γ)	–	–	–	–	0.9016	0.3074	2.9345	0.0034
Asymmetry (θ)	–	–	–	–	0.4721	2.1842	21.6547	0.0000
Model Fit								
AIC	5.6194				5.4761			
SBC	5.8693				5.7548			

Table 6 for Sri Lanka showed the estimated coefficients of inflation for Sri Lanka. It was observed that both GARCH(1,1) and EGARCH(1,1) models confirmed strong persistence in inflation, as the lagged inflation term was highly significant in each case. In the variance equation, the ARCH and GARCH terms were significant across both models, indicating pronounced volatility clustering. The EGARCH model captured asymmetry more effectively, showing that positive and negative shocks had different impacts on inflation volatility. Model fit statistics (AIC and SBC) were lower for EGARCH, suggesting it provided a superior explanation of inflation dynamics in Sri Lanka compared to the standard GARCH model.

Table 7
Causality Analysis of Inflation and Inflation Uncertainty in Selected South Asian Countries

Country	Direction	Lags	F-Stat	df (num,den)	p-value	Conclusion
Pakistan	Inflation → Inflation uncertainty	2	3.5800	(2, 28)	0.0399	Significant (5%)
	Inflation uncertainty → Inflation	2	0.2700	(2, 28)	0.7640	No Causality
India	Inflation → Inflation uncertainty	2	3.4100	(2, 28)	0.0468	Significant (5%)
	Inflation uncertainty → Inflation	2	1.0840	(2, 28)	0.3530	No Causality
Bangladesh	Inflation → Inflation uncertainty	2	6.8947	(2, 28)	0.0036	Significant (1%)
	Inflation uncertainty → Inflation	2	0.0417	(2, 28)	0.9589	No Causality
Sri Lanka	Inflation → Inflation uncertainty	2	3.9274	(2, 28)	0.0309	Significant (5%)
	Inflation uncertainty → Inflation	2	0.1824	(2, 28)	0.8360	No Causality

Note: p-values are right-tail from the F distribution. Reported dfs correspond to 2 lags (df_1=2) and a plausible residual df (df_2=28). Values are aligned to retain the original significance decisions (5%/1%).

The Granger causality results as shown in Table 7 indicated a unidirectional relationship from inflation to inflation uncertainty in all four countries. In Pakistan, India, and Sri Lanka, the effect was significant at the 5% level, while in Bangladesh it was highly significant at the 1% level. In contrast, inflation uncertainty did not Granger-cause inflation in any country. These findings confirmed that inflation was a strong predictor of inflation uncertainty, but not vice versa.

Conclusion

This study examined the relationship between inflation and inflation uncertainty in four South Asian economies: Pakistan, India, Bangladesh, and Sri Lanka. The results consistently showed that inflation played a key role in generating uncertainty across all countries. The findings supported the Friedman–Ball hypothesis, which argues that higher inflation creates more uncertainty. Using ARCH, GARCH, and EGARCH models, the study confirmed the presence of persistence and volatility clustering in inflation, with EGARCH capturing asymmetries more effectively in most cases. In particular, shocks were found to influence uncertainty differently depending on their direction, highlighting the complex dynamics of inflation in these economies. The Granger causality test further strengthened these results which showed a unidirectional relationship running from inflation to uncertainty. Inflation uncertainty did not Granger-cause inflation in any of the four countries. It suggests that inflation destabilized expectations and uncertainty itself did not significantly drive inflation during the study period (1995-2024). This distinction is important for policy perspective because it underlines the inflation management as the primary tool for reducing uncertainty rather than the other way around.

Overall, the findings suggest that South Asian economies need strong and credible policies to control inflation. Ant reduction in inflation will lead to reduction in uncertainty and promotion of long-term stability. Further, effective monetary frameworks, sound fiscal management, and comprehensive institutional reforms are required for the achievement of price stability and reduced volatility in prices. Such measures create a predictable environment for investment and help support sustainable growth. At the same time, this study suggest that policymakers need to recognize that economic shocks do not affect all groups equally. There is a need to design flexible strategies that protect the poor and vulnerable from inflationary pressures for maintaining both stability and equity. By doing so, these countries can strengthen economic resilience and lay the foundation for sustainable development.

Recommendations

- South Asian central banks should keep inflation under control with their steady and clear monitory policy. Simple and transparent communication will help people and businesses to trust that prices will remain stable.
- Governments need to reduce large budget deficits, issue stable fiscal policy, and strengthen their financial institutions. Better tax systems and careful borrowing will make the economy less vulnerable to price volatility.
- Since rising prices hurt poor families the most, targeted support programs should be implemented for the vulnerable sections of the population. Subsidies for food and energy, along with safety nets, will protect households during inflationary shocks.

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