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# Inflation Dynamics: A Comprehensive Analysis of Key Determinants Using Panel Data

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**Abstract:** A comprehensive analysis is performed on the relationship between key macroeconomic variables and the inflation rate, with particular emphasis on the effects of money supply growth, economic growth, and the levels of imports and exports across 39 countries. The aim is to provide empirical insights into the factors influencing inflation dynamics and to enhance understanding of their varying impacts in different national contexts. The investigation covers 5 Latin American countries, 2 Western Balkan countries, 13 European countries, 8 Asian countries, 11 African countries, and Australia, spanning a 23-year period from 2000 to 2023. The econometric techniques used for this investigation include Ordinary Least Squares (OLS), Fixed and Random Effects Regression, and Generalized Method of Moments (GMM) for dynamic panel data. The study finds that inflation persists over time, with broad money supply being the most significant predictor, particularly in Latin America and developing regions. Economic growth and trade factors have varying effects, with imports reducing inflation and exports lowering inflation more in Europe and Asia, while regional differences show higher inflation volatility in Latin America and Africa. Building on these findings, it is imperative to manage the money supply rigorously in developing regions, prioritize export-driven trade policies in Europe and Asia, and implement robust counter-cyclical measures in countries experiencing growth-related inflation. Effective inflation control demands tailored, region-specific strategies that address the unique economic challenges of each area.

**Keywords:** Inflation; Dynamics; Determinants; Panel Data; Analysis

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## 1. Introduction

Inflation, as one of the most critical macroeconomic indicators, significantly impacts economic stability, growth, and overall societal well-being. Over the decades, policymakers and economists have focused intensively on understanding the complex relationship between inflation and its key determinants [1, 2, 3, 4, 5]. Despite the extensive body of research, the dynamics of inflation remain a contentious issue, with findings often varying across different regions, time periods, and economic contexts. This is largely due to the diverse methodologies applied, the range of variables considered, and the unique economic conditions present in different countries and regions. As such, there remains a pressing need for a more nuanced and comprehensive analysis that captures the multifaceted nature of inflation dynamics and provides region-specific insights for more effective policy formulation.

The relationship between inflation and key macroeconomic variables such as money supply growth, economic growth, and trade dynamics—including imports and exports—plays a crucial role in understanding inflationary trends [6, 7]. Money supply growth is often seen as a primary determinant of inflation, with an increase in the money supply typically leading to higher demand and rising prices [8]. Economic growth, on the other hand, influences inflation in multiple ways: while strong growth can increase demand and put upward pressure on prices, it can also lead to higher productivity, which might reduce inflationary pressures over time [9]. The levels of imports and exports also significantly affect inflation. Imports tend to exert downward pressure on domestic prices by enhancing competition and broadening the availability of goods, thus reducing cost-push inflation [10]. Conversely, higher exports can create inflationary pressures by raising aggregate demand in the domestic economy, depending on the structure of trade and the flow of goods [11]. These macroeconomic variables interact in complex ways, and their effects on inflation can vary greatly depending on the economic context of different countries and regions. Understanding these dynamics is essential for crafting effective policies aimed at controlling inflation and ensuring sustainable economic growth.

This study aims to bridge a significant gap in the existing literature by undertaking a comprehensive, empirical investigation into the key macroeconomic variables that drive inflation dynamics. With a focused examination of the effects of money supply growth, economic growth, and the levels of imports and exports, the paper delves into how these critical factors shape inflation across a diverse and representative sample of 39 countries. Spanning multiple continents—Latin America, the Western Balkans, Europe, Asia, Africa, and Australia—this study offers a broad cross-section of global economic conditions. Covering a 23-year period from 2000 to 2023, the dataset encompasses a wide array of economic cycles, crises, and growth phases, providing a robust and dynamic foundation for a thorough analysis of inflation's underlying determinants. Through this investigation, the paper seeks to offer fresh insights that are not only regionally relevant but also globally significant in understanding the complex forces influencing inflation.

To ensure a robust and insightful analysis, advanced econometric methods such as Ordinary Least Squares (OLS), Fixed and Random Effects Regression, and Generalized Method of Moments (GMM) are applied to dynamic panel data. These techniques allow for a detailed exploration of both the short-term and long-term effects of key economic variables on inflation rates, providing a more nuanced understanding of inflation dynamics. The analysis is designed to explore the varying impacts of macroeconomic variables not only on inflation trends in general but also in the context of distinct economic regions, highlighting potential regional variations that may offer important insights for policymakers.

This paper has two main objectives. First, it aims to empirically analyze the relationship between key macroeconomic variables—such as money supply growth, economic growth, and trade dynamics—and inflation rates across 39 countries from different regions. Second, it seeks to identify regional variations in inflation dynamics by applying panel data analysis to assess how these factors impact inflation in both developed and developing economies over a 23-year period (2000–2023).

The paper is organized as follows: Section 2 presents the literature review, outlining relevant theories and previous research on inflation dynamics. Section 3 details the research methodology and data sources, while Section 4 analyzes the empirical results. Finally, Section 5 provides the conclusions, recommendations, and discusses the limitations of the study.

## 2. Literature Review

Numerous influential studies have extensively explored the relationship between key macroeconomic variables and inflation, particularly focusing on the effects of money supply growth, economic expansion, and trade balances [8, 12, 4, 5]. Scholars have provided varying perspectives on the impact of inflation on economic growth. For instance, some argue that moderate inflation can stimulate economic activity by encouraging spending and investment [13], while others contend that high inflation undermines purchasing power, destabilizes the economy, and impedes long-term growth [14]. The differing viewpoints are often influenced by the inflation rate's magnitude, underlying economic conditions, and the effectiveness of monetary policy [15]. This ongoing debate underscores the complexity of inflation's relationship with economic growth, emphasizing the need for region-specific policy responses to manage inflation and economic expansion effectively.

A significant body of research has also addressed the role of money supply in inflation dynamics. According to [8], the quantity theory of money suggests that a continuous increase in money supply leads to long-term inflation, though it may not immediately cause inflation in the short term. Similarly, [16] found that an increase in the money supply enhances inflation, as confirmed by their analysis of inflation determinants and policy measures in Pakistan over 38 years. The relationship between inflation and economic growth remains contentious, with [12] arguing that while inflation may be detrimental beyond a certain threshold, controlling inflation is essential for fostering both economic growth and poverty alleviation. Furthermore, [4] discovered a strong positive relationship between inflation and trade openness in India, challenging the validity of Romer's hypothesis. In contrast, [5] emphasized that inflation above 4 percent hampers economic growth, while inflation below this threshold supports economic growth, highlighting the positive role of low inflation in fostering development.

The dynamics of inflation are also shaped by regional economic contexts. For example, [17] illustrates how inflation in trade-dependent regions, such as Southeast Asia, is more sensitive to global price fluctuations, while Latin American economies, which rely more on domestic production, face inflationary pressures due to supply-side constraints and currency devaluation. Additionally, research by [18] reveals that African countries, characterized by limited trade openness, often experience inflationary pressures due to internal economic factors such as fiscal deficits and political instability. These regional differences emphasize the necessity of region-specific policies for managing inflation effectively in diverse economic environments.

The interaction between monetary and fiscal policies is another critical factor in inflation control. [19] argues that fiscal policies, such as government subsidies or taxation, can influence aggregate demand, while central bank actions like adjusting interest rates and controlling money supply are pivotal in regulating inflation. [20] found that in developing economies, expansionary fiscal policies often conflict with tight monetary policies, leading to mixed results in inflation control. In contrast, coordinated fiscal and monetary policies in advanced economies have been shown to more effectively stabilize inflation without stifling growth [17]. These findings underscore the importance of policy coordination for achieving effective inflation control. External shocks, such as oil price fluctuations, financial crises, and pandemics, can significantly disrupt inflation dynamics, even when domestic economic conditions remain stable. [18] discusses how global supply chain disruptions, particularly during the COVID-19 pandemic, led to inflationary pressures in many countries despite relatively stable domestic economies. Similarly, oil price shocks have been found to cause sharp increases in

inflation in oil-importing nations, while oil-exporting economies often experience mitigated inflation dynamics due to rising revenues [21]. These external factors highlight the vulnerability of inflation to global events, stressing the need for policymakers to account for external developments when managing inflationary pressures.

Inflation expectations also play a critical role in shaping consumer behavior, which in turn influences inflation dynamics. According to [22] inflation expectations can drive inflationary pressures even in the absence of actual economic changes. [23] argue that if consumers anticipate higher future inflation, they may increase their current spending, which drives demand and further raises prices. [24] found that inflation expectations in the eurozone significantly impacted consumer behavior, often more so than actual inflation rates. This suggests that inflation expectations are a crucial factor that policymakers must consider in their efforts to manage inflation.

Finally, structural factors such as demographic changes, income inequality, and technological innovation have significant long-term impacts on inflation dynamics. [25] explain that aging populations in developed countries can lead to lower inflation due to reduced consumption and investment. [26] highlights how rising income inequality can exacerbate inflationary pressures, particularly for lower-income households, leading to social and political instability. Technological advancements, on the other hand, often reduce production costs, thereby mitigating inflationary pressures. These structural factors interact with monetary and fiscal policies to shape inflation dynamics, further complicating the task of controlling inflation in both developed and emerging economies.

Despite substantial research on inflation dynamics, several critical gaps remain. The relationship between broad money and inflation, particularly across different economic contexts, requires further exploration. Similarly, the impact of economic growth on inflation, especially in developing versus developed economies, needs deeper analysis. The effects of trade dynamics on inflation, particularly in trade-dependent economies, are also underexplored. Additionally, the interaction of these variables in diverse regional contexts, particularly in developing economies, warrants more investigation. Finally, while regional differences are acknowledged, there is limited research on inflation variations across countries with distinct economic structures. Addressing these gaps could lead to more targeted, region-specific policy recommendations and a deeper understanding of inflation's complexities.

### **3. Materials and Methods**

This section provides an in-depth analysis of the data, variables, and model employed to understand inflation dynamics and their broader impact on the global economy. The study encompasses a diverse set of 39 countries drawn from various regions around the world, each selected to offer unique insights into the factors shaping inflation and its economic consequences. These countries include Latin American nations such as Argentina, Brazil, Chile, Colombia, and Ecuador, which represent emerging markets with distinct economic structures and challenges. From the Western Balkans, Albania and Montenegro were chosen to reflect transitional economies in the post-socialist era. European countries like Poland, Hungary, Czechia, France, Bulgaria, Latvia, Belgium, Finland, Lithuania, Netherlands, Denmark, Estonia, and Sweden were included to capture a wide spectrum of developed and developing economies within the continent, each with varying levels of integration into the European Union and distinct inflationary pressures. The selection of

Asian countries such as Israel, Singapore, Brunei, Kuwait, Japan, South Korea, Saudi Arabia, and Bahrain provides insights into both advanced economies and rapidly growing markets across the continent, reflecting a wide range of monetary policies and economic conditions. Finally, the inclusion of African nations (Algeria, Republic of Congo, Sudan, Libya, Chad, Niger, Angola, Mali, South Africa) and Pacific nations like New Zealand and Tonga enables a deeper understanding of inflation dynamics in regions characterized by a diverse set of economic challenges, from resource-rich countries to developing economies. The inclusion of such a wide array of countries ensures a comprehensive perspective on inflation's role across different economic contexts and regions.

### 3.1. Data Overview

This investigation relies exclusively on secondary panel data, which were meticulously sourced from the World Bank. These organizations provide highly detailed and reliable data, which has been instrumental in the accuracy and depth of the research process. This period captures a dynamic phase in the global economy, including the post-2000 era of globalization, the rise of emerging markets, and shifts in global inflationary pressures. Additionally, it covers a period of significant technological advancements, changes in global trade patterns, and evolving monetary and fiscal policies across diverse regions. By examining this period, the study captures critical shifts in inflation dynamics and their relationship with broader economic trends, providing valuable insights into both short-term fluctuations and long-term structural changes in the global economy. Additionally, the choice of this timeframe is influenced by the availability of data. All 39 countries included in the study provided data for this period, ensuring that the panel data is well-balanced and comprehensive. However, there were no data registered for certain variables in 2023, such as New Zealand's import and export levels and Sudan's broad money statistics. These gaps are expected to be filled in the coming years as new data becomes available.

### 3.2. Description of Variables

Variables included in the model are described in Table 1.

**Table 1.** Descriptions of variables.

Variable	Index	Description	Symbol	Expected Sign	Data Source
Dependent Variable	Inflation rate	(Inflation, consumer prices (annual %))	INF		World Bank
Independent Variables	Broad money	Broad money (% of GDP)	BM	+	World Bank
	Economic growth	GDP growth (annual %)	GDP	+	World Bank
	Import level	Imports of goods and services (% of GDP)	IL	-	World Bank
	Export level	Exports of goods and services (% of GDP)	EL	-	World Bank

Source: author's calculation.

The dependent variable used is Inflation, measured by the consumer price index, which reflects the annual percentage change in the cost to the average consumer of acquiring a fixed or periodically updated basket of goods and services. The independent variables include Broad Money, which represents currency outside banks, demand deposits, resident deposits (time, savings, and foreign currency), bank checks, and securities such as certificates of deposit and commercial paper; Economic Growth, measured by annual GDP growth percentage; Import Level, defined as imports of goods and services as a percentage of GDP; and Export Level, representing exports of goods and services as a percentage of GDP.

The panel unit root tests were conducted using two methods: Im-Pesaran-Shin (IPS) and Fisher-type (see Table A1 in Appendix section). Based on the panel unit root tests conducted on the economic variables of Inflation rate, Broad money, Economic growth, Import level and Export level. According to the results, the Im-Pesaran-Shin unit root tests reveal that the Inflation rate, Broad money, and Economic growth variables are all stationary, with significant results (p-values of 0.0000, -8.5116, -6.2180, and -13.5433 respectively). This indicates that these variables exhibit stable relationships with inflation, supporting their inclusion in reliable models for understanding inflation dynamics. The Import level also shows stationarity (p-value = 0.0015), suggesting that imports have a stable deflationary influence, particularly in trade-dependent economies. However, the Export level does not demonstrate stationarity, with a test statistic of -0.3978 and a p-value of 0.3454, implying that exports may not consistently impact inflation across the regions analyzed. The Fisher-type test further confirms the significance of inflation, broad money, economic growth, and imports, while exports do not exhibit a significant role. These findings underline the importance of monetary policies and economic growth strategies in controlling inflation, while suggesting that the impact of exports requires further exploration.

### 3.3. Model Framework

This investigation included a range of econometric methods such as Ordinary Least Squares (OLS), Fixed and Random Effects Regression, and Generalized Method of Moments (GMM) for dynamic panel data. The reason for applying these selected methods relies on their ability to address different aspects of panel data analysis.

The Ordinary Least Squares (OLS) method was employed for two main reasons. First, it allows for the estimation of the relationship between one or more explanatory variables and a continuous (or at least interval-level) dependent variable by minimizing the sum of squared errors, where the error is defined as the difference between the observed and predicted values of the outcome variable [27]. Second, OLS was used to provide a benchmark for comparison with other econometric methods applied in the analysis, ensuring a clear understanding of how the results differ across various approaches.

The methods used thereafter are Fixed Effects and Random Effects regressions. According to [28], in a fixed-effect model, a single effect size is estimated for each subgroup, assuming it is the same across all studies. In a random-effects model, effect sizes are assumed to follow a normal distribution within each subgroup, with both the mean and variance estimated. This approach also applies to meta-regression analysis. In the fixed-effect model, the true effect size equals the predicted value, while in the random-effects model, the true effect size varies around the predicted value. The Hausman Test was used to determine whether to choose the Fixed or Random effects method.

According to [29], the Hausman Test is a general specification test, where rejection of the null hypothesis indicates model misspecification, rather than supporting the fixed effects estimator. Conversely, failure to reject the null hypothesis supports the random effects estimator, which is efficient under the null.

The final method employed is the Generalized Method of Moments (GMM) for dynamic panel data. GMM is particularly useful in panel data analysis for estimating parameters in models that account for individual and time-specific effects, making it effective in addressing challenges such as endogeneity, heterogeneity, and unobserved variables [30]. The system GMM estimator enhances estimation accuracy while significantly minimizing bias in finite samples.

The specification of the model is:

$$INF_{it} = u + INF_{(it-1)} + \beta_1(BM_{it}) + \beta_2(GDP_{it}) + \beta_3(IL_{it}) + \beta_4(EL_{it}) + \delta_i + \gamma_i + \epsilon_{it} \quad (1)$$

where:

The dependent variable in this study is INF growth, which represents inflation, measured by annual percentage changes in consumer prices for each country. In this context, *i* refers to individual countries, *t* indicates the time period, and *u* is the constant term. The independent variables include BM, which represents broad money as a percentage of GDP; GDP, indicating annual GDP growth; IL, representing imports of goods and services as a percentage of GDP; and EL, signifying exports of goods and services as a percentage of GDP. The term  $\delta_i$  controls for time-invariant unobservable factors that may influence economic growth, capturing the country-specific fixed effects. The term  $\gamma_i$  accounts for the business cycle or common time effect, while  $\epsilon_{it}$  represents the standard error.

#### 4. Results

This section presents the findings from the regression analysis, highlighting the key factors influencing inflation dynamics across different countries. Table 2 presents descriptive Statistics, with each section corresponding to a specific type of data summarization for the variables.

**Table 2.** Descriptive Statistics.

Variable	OBS	Mean	Std. Dev.	Min	Max
INF	928	5.39	19.43	-9.79	359.09
BM	933	18.98	31.56	-9.79	359.09
GDP	935	3.13	7.58	-58.31	153.49
IL	924	45.78	27.40	1.04	208.33
EL	924	46.90	32.27	1.16	228.99

Source: author’s calculation.

As shown in the table, the dataset includes 924 to 935 data points for each variable, indicating a relatively consistent and extensive dataset across variables. The mean values of the variables suggest moderate trends in the economy. INF has a mean of 5.39, indicating moderate inflation. BM’s mean

of 18.98 reflects a moderate money supply level. GDP's mean of 3.13 suggests moderate economic growth, though this depends on the time frame considered. IL, likely representing interest rates or investment levels, also averages 3.13, and EL, with a mean of 3.13, could represent exports, employment, or energy, likely indicating a lower baseline compared to GDP and BM.

The wide range of values and high standard deviations for most variables indicate significant economic volatility, with fluctuations in inflation, money supply, GDP, and other factors. Negative minimum values for variables like INF, BM, and GDP suggest periods of economic distress, such as recessions, deflation, or financial crises. Conversely, the extreme maximum values reflect potential economic booms or periods of high inflation and financial expansion.

Table 3 presents the regression results, utilizing econometric techniques such as Ordinary Least Squares (OLS), Fixed and Random Effects Regression, and the Generalized Method of Moments (GMM) for dynamic panel data. The aim of this analysis is to provide empirical insights into the factors influencing inflation dynamics, enhancing the understanding of how these factors impact inflation differently across various national contexts.

**Table 3.** Regression results.

Variable	OLS	FE Regression	RE Regression	GMM Dynamic Panel Data
	Model I	Model II	Model III	Model IV
INF lag				0.0756
<i>s.e.</i>				(0.0004)
BM	0.2569	0.8385	0.7675	0.9384
<i>s.e.</i>	(0.0155)	(0.0153)	(0.0163)	(0.0003)
GDP	-0.0340	0.0606	0.0398*	0.0455**
<i>s.e.</i>	(0.0595)	(0.0298)	(0.0332)	(0.0010)
IL	-0.1185	-0.02068*	-0.0270	-0.0092***
<i>s.e.</i>	(0.0351)	(0.0338)	(0.0356)	(0.0002)
EL	0.0774	-0.1035	-0.0405**	-0.0819
<i>s.e.</i>	(0.0301)	(0.0304)	(0.0315)	(0.0008)
J-statistic				36.748
Prob (J-statistic)				0.3427
Mean dependent var				0.1445
S.D. dependent var				11.7677
S.E. of regression				2.9799
Sum squared resid.				7397.179

Note(s): \*\*\*Statistically significant at 1 percent level, \*\*statistically significant at 5 percent level, \*statistically significant at 10 percent level. Source: authors' calculations.

As shown in Table 4, various economic factors influence inflation in significant ways. A 1-unit increase in the previous period's inflation rate leads to a 0.0757-unit rise in the current inflation rate, DOI: <https://doi.org/10.54560/jracr.v15i1.549>

suggesting that inflation tends to persist over time with a statistically significant relationship ( $p = 0.0000$ ). Broad money is the most influential predictor, where a 1-unit increase results in a 0.9385-unit rise in inflation, highlighting the strong and significant role of money supply in driving inflation ( $p = 0.0000$ ). Economic growth also plays a role, with a 1-unit increase in GDP growth associated with a small 0.0456-unit rise in inflation, indicating a modest positive impact of economic expansion on price levels. On the other hand, imports and exports have opposite effects on inflation: a 1-unit increase in import levels results in a 0.0093-unit reduction in inflation, suggesting that higher imports reduce price levels, possibly due to competitive pricing or lower costs. Exports have a stronger deflationary effect, with a 1-unit increase in export levels leading to a 0.0819-unit decrease in inflation, which may be attributed to increased production or higher demand abroad.

The model uses cross-section fixed effects with first-differenced data to account for individual differences across cross-sections (e.g., countries or regions), helping to control for unobserved factors that may vary between them. This approach ensures that the results reflect changes within each unit over time rather than across different units.

The model diagnostics indicate that the average inflation rate is 0.1445, with significant variability (S.D. = 11.7677), and the standard error of regression (2.97996) measures the typical deviation between observed and predicted inflation rates. The sum squared residuals (SSR = 7397.179) reflects the total model error, while the J-statistic (36.7487) and its p-value (0.3427) suggest that the instruments used in the model are valid and the model is not over-identified.

These results demonstrate that various economic factors significantly influence inflation dynamics. The persistence of inflation, driven by the previous period's inflation rate, highlights the ongoing nature of inflationary trends. Broad money emerges as the most influential factor, with a strong positive relationship to inflation, while economic growth shows a modest inflationary impact. Imports and exports exhibit contrasting effects, with imports reducing inflation and exports having a stronger deflationary influence. The use of cross-section fixed effects with first-differenced data effectively controls for individual differences, ensuring robust results. Overall, the model provides valuable insights into the key drivers of inflation, supported by reliable diagnostics.

## 5. Conclusion, Recommendations, and Policy Implications

The findings from this analysis provide valuable insights into the factors influencing inflation across various regions, revealing both common trends and regional differences in how inflation is driven by economic growth, money supply, and trade. The results indicate that inflation tends to persist over time across the studied regions, with a significant relationship between past and current inflation rates, highlighting the stability of inflationary trends. Broad money supply emerges as the most influential predictor of inflation, particularly in Latin America and other developing regions, emphasizing the importance of managing money supply to control inflation. Economic growth shows a modest positive relationship with inflation, though the impact varies, with Latin American and Western Balkan countries exhibiting a more pronounced effect. Trade factors also play contrasting roles, with higher imports reducing inflation and increased exports having a stronger deflationary impact, especially in Europe and Asia. Regional variability is evident, with Latin American and African countries experiencing higher inflation volatility, while European and Asian countries show more stable inflation patterns.

In light of these findings, several recommendations emerge. Central banks, particularly in Latin

America and Africa, should prioritize managing the money supply more carefully, adopting policies that target inflation control through monetary tightening when necessary. More specific measures may include raising interest rates during inflationary periods or implementing quantitative easing programs during deflationary periods. Economic diversification should be promoted in developing regions to reduce dependency on sectors prone to external shocks, such as commodities. Countries could focus on fostering innovation, investing in infrastructure, and supporting industries such as technology and manufacturing. For trade policies, countries in Europe and Asia may consider strengthening export promotion programs, which could involve negotiating trade agreements or investing in infrastructure that facilitates export growth. In contrast, regions like Latin America and Africa could implement strategies to manage imports effectively, such as using tariff adjustments to stabilize domestic prices. Inflation targeting and clear communication of policy actions are essential, particularly in Latin America and Africa. By setting clear inflation targets, central banks in these regions could improve public confidence in their ability to manage inflation. For countries where economic growth leads to inflation, counter-cyclical policies, such as tightening fiscal policies during periods of growth, could help mitigate inflationary pressures. Lastly, region-specific strategies should be considered, with developed countries maintaining inflation targeting frameworks while developing countries focus on implementing structural reforms, enhancing fiscal management, and improving governance to create an environment conducive to stable inflation rates.

**Study Limitations and Considerations:** While the study provides valuable insights, several limitations should be noted. Variations in data quality and consistency across regions may introduce bias, particularly in countries with incomplete inflation or economic indicators. The diverse economic structures and policies across regions may limit the generalizability of the findings. Additionally, the model does not account for all potential factors influencing inflation, such as political instability or global shocks. Establishing clear causality remains challenging with cross-sectional panel data, and the fixed time period from 2000 to 2023 may not fully reflect future economic conditions. Despite these limitations, the results offer robust empirical insights into inflation dynamics.

**Directions for Future Research:** Future research could expand by examining sector-specific inflation or regional subgroups within countries to gain more detailed insights into the drivers of inflation. Additionally, incorporating more dynamic models that account for external shocks, such as pandemics or geopolitical crises, would provide a better understanding of inflation's response to unforeseen events. Further improvements in causality testing, using methods like instrumental variables or Granger causality, could help clarify the relationships between key variables. Extending the analysis to include pre-2000 data would allow for a comparison of long-term inflation trends, while exploring the influence of non-economic factors, such as political stability or social factors, would offer a more holistic view of inflation dynamics.

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## Appendix A

Table A1. Panel unit root test.

	Method	Method
	Im-Pesaran-Shin unit-root test	Fisher-type (Chi- square)
Inflation rate		
<i>statistic</i>	-8.5116	405.6278
<i>prob.**</i>	0.0000	0.0000
Broad money		
<i>statistic</i>	-6.2180	309.0086
<i>prob.**</i>	0.0000	0.0000
Economic growth		
<i>statistic</i>	-13.5433	656.9082
<i>prob.**</i>	0.0000	0.0000
Import level		
<i>statistic</i>	-2.9756	127.1644
<i>prob.**</i>	0.0015	0.0004
Export level		
<i>statistic</i>	-0.3978	75.3594
<i>prob.**</i>	0.3454	0.5637

Source: author's calculation.

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