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Analyzing the Impact of Money Supply and Economic Growth on Inflation in SAARC Countries (2000-2020)

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ABSTRACT

Inflation is one of the variables that not only concerns economists but also garners attention from policymakers due to its social impacts and consequences. Policymakers and economists closely monitor and analyze its fluctuations. Identifying the causes of inflation is a critical step in combating it; without correctly identifying the underlying causes, efforts to address inflation may be misguided. Furthermore, effective inflation control and managing persistent price increases require a comprehensive understanding of its effects and consequences.

This study examines the impact of money supply and economic growth on the general price level in SAARC countries during the period 2000–2020 using panel data methodology. The research seeks to answer the question: *What has been the effect of money supply and economic growth on the general price level in SAARC countries from 2000 to 2020?* To address this question, the hypothesis tested posits that money supply and economic growth have a positive and significant effect on price levels.

The findings of the research confirm this hypothesis, indicating that an increase in money supply leads to a rise in the general price level and inflation. Moreover, the velocity of money has a negative and significant effect on inflation, while economic growth does not have a significant impact on the general price level.

***Keywords*-** Inflation, Economic Growth, Money, Money Supply, Panel Data.

I. INTRODUCTION

The impact of economic growth and money supply on economic activities, particularly on real variables such as production and employment, has been the subject of extensive discussions in macroeconomic literature. Over the past three decades, numerous studies have focused on the short-term effects of money supply growth on real economic variables like production and employment, emphasizing the distinction between the anticipated and unanticipated effects of money supply growth on these variables. Empirical evidence aligns with the evaluation of both the neoclassical and Keynesian models.

In the neoclassical model, anticipated changes in the money supply do not affect real variables, whereas unanticipated money growth can influence real variables in the short term. This approach, based on the rational expectations hypothesis and contrary to Friedman, suggests that non-systematic or discretionary monetary policies can impact real variables. In contrast, the Keynesian model argues that both components of money growth—anticipated and unanticipated—affect production and employment. Some Keynesians accept the rational expectations hypothesis but believe that anticipated economic policies can still be effective in the short term (Beck et al., 2003).

Monetary and fiscal policies, along with the performance of institutions responsible for policymaking in these domains, have gained increased importance. Among these, monetary policy is one of the most powerful tools for achieving macroeconomic stability. Since Friedman declared inflation a monetary phenomenon, monetary policies have occupied a central role in economic theories. This focus, which became prominent in the second half of the 20th century, has

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persisted in theoretical and empirical works up to recent years. These policies are primarily designed and implemented by central banks.

Monetary policy affects economic stability and aggregate demand fluctuations through changes in money supply and interest rates. Studies in monetary economics have paid special attention to the role of money and monetary policy as nominal economic factors influencing two key macroeconomic variables: inflation (representing nominal variables) and production (representing real variables), along with their fluctuations (Lucas et al., 2011: 1072; Walsh, 2010: 375–376; Handa, 2007: Chapters 1 and 5).

As Bernanke and Mishkin (1997) and Mishkin (2005) stated, until the early 1990s, economic theories aimed at macroeconomic stability—particularly in controlling and reducing inflation rates—primarily relied on exchange rate channels and money supply targeting within monetary policies. Peterson (2004) argued that after this period, monetary policy, based on the theory of long-term money neutrality, shifted its focus directly towards controlling and reducing inflation rates, aligning with the framework of inflation targeting (Yadollahzadeh Tabari, 2008: 2).

However, following the 2007 financial crisis, attention grew toward the interactions and effectiveness of monetary and fiscal policies in reducing economic fluctuations. After the high inflation of this period, most countries assigned their central banks the responsibility of maintaining price stability and increased their independence to ensure success in this area. Nonetheless, economic literature highlights that macroeconomic performance depends not only on price stability but also on achieving a balanced relationship between inflation and production, which can significantly enhance economic performance. For instance, Taylor (2000: 16–17) considers the stabilization of production and inflation fluctuations as key indicators of effective macroeconomic performance.

Despite the extensive research on the relationship between money supply and inflation, as well as the impact of economic growth on inflation, and the development of a relatively deep and long-standing literature in this area, further empirical studies are necessary. This study aims to investigate the effects of money supply and economic growth on the general price level in SAARC countries using panel data for the period 2000–2020.

II. THEORETICAL BACKGROUND

The relationship between money supply, economic growth, and the general price level lies at the core of macroeconomic research. These intricate dynamic influences inflation, monetary stability, and economic policies across nations. Through various lenses—classical, Keynesian, and monetarist—economists have sought to unravel how these variables interact. This section presents a refined theoretical framework, integrating key economic theories and empirical insights to provide a comprehensive understanding of the subject.

Classical Quantity Theory of Money

The Classical Quantity Theory of Money, developed by economists such as David Hume, Adam Smith, and later Milton Friedman, emphasizes the direct relationship between changes in the money supply and the general price level. This theory is based on the classical monetary equation that establishes a relationship between money supply, price levels, and real output:

$$MV=PY$$

Where: (M) is the money supply, (V) is the velocity of money, (P) is the general price level, and (Y) is real output.

According to this theory, when the money supply increases, if output remains constant, this increase will directly lead to a rise in the general price level (inflation). In other words, under the classical view, changes in the money supply have a direct and predictable effect on prices. This theory is particularly relevant when the economy is at full employment, assuming that the economy reaches equilibrium in the long run where changes in the money supply only affect prices and not real variables like output or employment.

Milton Friedman further elaborated on this idea, asserting that changes in the money supply directly impact inflation, although he acknowledged that in the short term, changes in money supply might be more complicated due to shifts in consumer behavior and inflation expectations (Friedman, 1968).

Keynesian Theory

In contrast to the classical economists, John Maynard Keynes developed a theory in the 1930s which emphasized that economies could fall out of short-run equilibrium, leading to recessions and high unemployment. According to this theory, in periods of economic downturn, increasing the money supply can raise demand for goods and services, stimulating output and employment without necessarily causing inflation. Keynes argued that effective demand, which refers to the real demand for goods and services, plays a critical role in stimulating economic growth. He also suggested that when the economy is in a recession, increasing the money supply can lower interest rates, stimulate investment, and boost economic activity. However, he acknowledged that in the long term, as demand rises and the economy approaches full employment, this increased demand might lead to inflationary pressures. Keynes argued that monetary policies should be carefully managed to avoid inflation, especially once the economy approaches full capacity (Keynes, 1936).

New Monetarist Theory

The New Monetarist Theory, which gained prominence in the 1980s and 1990s in response to

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economic crises and inflationary volatility, argues that money supply has a significant impact on the general price level, but not in a simple or one-dimensional way. This theory is particularly critical of the classical view's simplistic approach to the relationship between money supply and inflation. According to this view, increasing the money supply may initially stimulate demand and reduce unemployment. However, in the long run, excessive growth in the money supply, especially when it is not accompanied by growth in real output, will lead to inflation. In this context, central banks and monetary policies play a crucial role in controlling inflation and managing economic growth (Woodford, 2003). The New Monetarist Theory also suggests that if the velocity of money and output do not undergo significant changes, the central bank can use tools such as adjusting interest rates and buying and selling bonds to control inflation while promoting economic growth.

Inflation Expectation Theories

Inflation expectation theories, particularly within the framework of monetarist and Friedman's ideas, emphasize the role of expectations in influencing economic behavior. According to this theory, inflation expectations can have a significant impact on economic activity. In other words, if people and firms expect prices to rise in the future, they may take actions such as increasing consumption, raising wages, and increasing prices, which can lead to a self-reinforcing inflationary cycle. Inflation expectations can contribute to inflationary pressures even if the money supply itself remains unchanged. This suggests that monetary policies that influence inflation expectations are vital for managing inflation (Friedman, 1968).

Growth and Inflation Theory

The relationship between economic growth and inflation has been widely debated. Some models argue that economic growth can reduce inflation, particularly when increases in output are matched by increases in the supply of goods and services. On the other hand, when economic growth leads to a surge in demand and supply cannot keep pace, inflationary pressures can arise.

Studies indicate that in some cases, particularly in developing countries, an increase in the money supply can contribute to economic growth. However, if this increase is not accompanied by effective policies to manage the supply of goods and services, it may lead to persistent inflation (Deaton, 2013).

Structural and Monetary Variables

In some newer theories, particularly in studies of developing economies, emphasis is placed on structural variables such as infrastructure, labor markets, and trade policies. These theories suggest that, in addition to the money supply, factors like productivity, commodity price fluctuations, and technological changes can also influence the general price level.

In this view, an increase in the money supply might lead to inflation if it is not accompanied by structural development and improvements in production capacity. Therefore, policymakers must focus on coordinated growth in both money supply and real output to prevent excessive price increases (Deaton, 2013).

New Theories and the Role of Central Banks

In the modern world, central banks play a key role in controlling the general price level. Unconventional monetary policies, such as asset purchases and near-zero interest rates, are particularly used during economic crises to manage inflation and stimulate growth. These policies generally increase liquidity in the economy, but if inflation expectations are not effectively managed, they may lead to persistent inflation. Recent studies show that central banks can use tools like interest rate policy, bond buying and selling, and money supply regulation to prevent runaway inflation and foster economic growth. In this context, changes in the money supply have a direct effect on inflation, but the impact can vary depending on the economic conditions and central bank policies (Blanchard & Johnson, 2013).

III. LITERATURE REVIEW

The phenomenon of price increases has a long history in human life. Since the introduction of money into exchanges, rising prices have been a persistent issue that has preoccupied human thought. Scholars have endeavored to trace the roots and identify the causes of inflation to prevent its occurrence. Numerous studies have been conducted on money supply, economic growth, and their impact on price increases. Below is an overview of some of these significant works.

Shirvani and Wilbricht (1994) used the convergence test to examine the relationship between money and inflation. Their findings revealed that money and inflation are only correlated in countries experiencing high inflation. In nations with low or moderate inflation, this model fails and lacks explanatory power.

Olin Liu et al. proposed a framework to investigate the determinants of inflation in Iran's economy during the 1989–1998 period. They used an empirical model considering imbalances in the money, foreign exchange, and goods markets. Their results demonstrated that a sudden shock to the nominal money equation positively impacts price levels.

Kazerooni and Asghari tested the compatibility of the monetarist inflation model with the characteristics of Iran's economy. They found a long-term convergence between money growth and inflation. A 1% increase in money growth leads to a 0.9% rise in inflation. The findings confirm the monetary nature of inflation in Iran.

Park and Masha studied the impact of exchange rate fluctuations on production and general price levels in the Maldives from 1994 to 2010 using the VAR model. Their results showed a significant relationship

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between exchange rates and the overall consumer price index in the Maldives.

Abbasi-Nejad and Tashkini (2004) examined the factors influencing inflation in Iran from 1960 to 2001 using time-series data. They found that a 10% growth in money supply leads to a 3% increase in the general price level, rejecting a one-to-one relationship between inflation and money supply.

Hejabr-Kiani and Rahmani (1998) investigated the relationship between money supply and inflation using Cagan's demand-for-money model. Assuming adaptive expectations, their findings supported the monetary nature of inflation in Iran for both narrow and broad money definitions.

Afshinnia (1998) tested the modern quantity theory of money in Iran from 1959 to 1997. This theory posits that changes in money supply significantly affect price levels and expectations in the long term. Results indicated that a 1% change in liquidity impacts inflation by 0.48% in the first period and 0.38% in the second period. Despite lagged effects, the study emphasized the importance of controlling money supply to regulate future prices.

Barro (1979) and Barro and Rush (1980) tested the rational expectations hypothesis, focusing on unexpected money supply growth's impact on production and employment. Their findings confirmed the influence of unanticipated money growth on real economic variables.

Tayebnia (1995) found a direct and significant correlation between money supply and inflation in Iran (1961–1991), although the relationship was not one-to-one. The causal relationship test revealed no causality between these two economic variables.

Tang (2008) analyzed the relationship between money supply and price levels in Malaysia using monthly data from 1971–2008. The findings indicated a one-way causal relationship from money supply to price levels, suggesting that inflation in Malaysia is not solely a monetary phenomenon.

Chen et al. (1986) examined the impact of unexpected macroeconomic changes on stock returns in the U.S. (1953–1983). Their results showed a negative relationship between inflation and money supply, highlighting the significant influence of inflation and industrial growth on the economy.

Studies reveal a divergence between money supply and inflation. Research on high-inflation countries often suggests a one-to-one relationship between money growth and inflation. However, others argue against this and consider inflation not exclusively a monetary phenomenon. Similarly, the relationship between economic growth and inflation varies; while many studies suggest a positive and significant correlation, inflation's adverse effects on economic growth are acknowledged, especially through reduced economic and social stability.

Innovation in the Present Study

This research offers two distinct contributions: Spatial and Temporal Scope**:** Focuses on SAARC countries during 2000–2020. Simultaneous Examination**:** Analyzes the combined effect of money supply and economic growth on inflation in these nations.

IV. RESEARCH METHODOLOGY

In quantitative research, theoretical foundations and methodology emphasize the need for a series of tests to obtain accurate and reliable results. Accordingly, this study employs panel data with annual observations, and the following econometric model has been applied:

$\ln CPI_t = \beta 0 + \beta 1 \ln M_{it} + \beta 2 \ln GDP_{it} + \beta 3 \ln V_{it} + \varepsilon_{it}$

- $lnCPI_t$:The logarithm of the Consumer Price Index (CPI), representing inflation.
- $lnGDP_{it}$: The logarithm of real Gross Domestic Product (GDP), indicating economic growth.
- lnM_{it}: The logarithm of the money supply.
- lnV_{it}: The logarithm of the velocity of money.
- $\beta 1$, $\beta 2$, $\beta 3$ **:** Estimated coefficients for the variables in the model.
- ε_t: The error term of the regression model.

Considering the research topics and equations, the results of various tests—unit root, F-Limer, Hausman, heteroscedasticity, multicollinearity, and autocorrelation—have been presented. Based on the outcomes of each test, the interpretations and analyses have been conducted. Finally, the model's parameter estimates have been provided.

Dispersion Indicators

Dispersion indicators help individuals classify data using specific measures such as variance, standard deviation, and skewness, making the data more comprehensible. These indicators are a set of tools that allow individuals to evaluate the quality of data in a measurable and objective manner. The dispersion indicators for the research variables are presented in ***Table 1 below:***

Table 1: Dispersion Indicators

Indicator	CPI	GDP	M_T	V_T
Mean	107.7825	5.143965	1.20E+13	15.86831
Median	100.0000	5.571788	1.45E+12	15.17171
Maximum	200.0790	26.11149	1.74E+14	49.98322
Minimum	36.48003	-33.49990	3.02E+09	-0.182480
Std. Dev	40.67677	4.987973	2.94E+13	8.130208

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Skewness	0.244609	-2.722248	3.581732	1.417723
Kurtosis	2.011486	27.69881	15.96126	6.544170
Normality	8.059279	4237.837	1452.925	136.4809
Probability	0.017781	0.000000	0.000000	0.00000
Sum	17137.42	817.8904	1.91E+15	2523.062
Observations	261426.8	3931.020	1.36E+29	10443.84
Sections	159	159	159	159

Source: *Research Findings*

Based on Table 1, it can be observed that all selected variables exhibit a good degree of homogeneity. Furthermore, the dispersion of all variables is low and normal, as evidenced by the **probability value** for the normality test, which is approximately zero.

Multicollinearity Test

Multicollinearity refers to a condition where an independent variable is a linear function of other independent variables. When multicollinearity is high in a regression equation, it indicates a strong correlation between independent variables. This might lead to a situation where, despite a high coefficient of determination (R^2), the model lacks validity. In statistics, the **Variance Inflation Factor (VIF)** is used to assess the severity of multicollinearity. The VIF measures how much the variance of estimated coefficients increases due to multicollinearity.

As a general rule, if the VIF value exceeds **5**, it indicates a high degree of multicollinearity. To ensure no multicollinearity exists among the variables in this study, the **Variance Inflation Factor (VIF)** was utilized. Based on the results in **Table 2**, the absence of multicollinearity among the research variables is confirmed.

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Table 2: VIF Multicollinearity Test

Variable	VIF Statistic
GDP	1.036088
M_T	1.018972
V_T	1.055.70

Source: *Research Findings*

The VIF values for all variables are well below the threshold of 5, verifying the absence of significant multicollinearity.

Unit Root Tests

One of the essential prerequisites for estimating a model is the stationarity of dependent and independent variables. A variable is considered stationary if its mean, variance, and autocorrelation coefficients remain constant over time. If non-stationary variables are used in model estimation, it may lead to a high coefficient of determination (R^2) despite no meaningful relationship among the variables, causing researchers to make erroneous inferences about the relationships between variables (Noferesti, 2008).

Using non-stationary variables in a model can result in **spurious regression**. To prevent this, the **Im, Pesaran, and Shin (IPS) test** was employed to check for unit roots in the model variables. The null hypothesis of this test suggests the non-stationarity of the variables. The results, summarized in **Table 3**, are based on the time frame under study.

Table 3: Unit Root Test Results for Model Variables

Variables	**Im, Pesaran, and Shin Test**		**Results**
	Statistic	**p-value**	
$D(CPI_1)$	5.49599	1.0000	Becomes stationary after first differencing.
GDP	-2.34620	0.00095	Stationary at level.
$D(Mt_1)$	11·4358	1.0000	Becomes stationary after first differencing.
Vt	-4·16556	0.0000	Stationary at level.

Source: *Research Findings*

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The results of the unit root test indicate that the variables of economic growth and velocity of money are stationary. However, the consumer price index and money supply variables are non-stationary. Therefore, given that some variables are stationery and others exhibit a unit root, it is necessary to apply the error correction test in two scenarios: with an intercept and with both an intercept and trend. This ensures the absence of spurious regression and confirms the existence of a cointegration vector.

Cointegration Test

Maintaining the stationarity assumption for variables is crucial in econometric methods, especially when some variables are stationary at the first difference while others are stationary without differencing. Using differenced data for model estimation may result in losing valuable information about the levels of the variables, as economic theories are primarily based on long-term relationships between the levels of variables rather than their differences. Although differencing ensures stationarity, it sacrifices essential insights about the long-term relationships among variable levels. To address this issue, econometricians developed the cointegration method, which allows estimating model coefficients based on the levels of variables without the risk of spurious regression. The economic concept of cointegration implies that when two or more time series variables are theoretically related to form a long-term equilibrium relationship, they may individually exhibit non-stationary trends. However, over time, they move closely together such that their differences remain stationary, indicating cointegration. This relationship reflects the long-term equilibrium towards which the economic system converges over time.

In this study's time series model, given that some variables are stationary at the first difference and others without differencing, a cointegration test is necessary. The error correction or cointegration test examines seven hypotheses, three related to between dimensions and four to within dimensions. If at least one statistic in either category is below 0.05, the null hypothesis of spurious regression and no cointegration is rejected.

Based on the results in Table 4, the null hypothesis is rejected with 95% confidence, confirming that the proposed model lacks spurious regression and includes a cointegration vector.

Table (4): Cointegration Test Results

Hypothesis (Within Dimensions)	Statistic	Prob.
Panel Statistic	-2.019618	0.9783
Panel Phillips-Perron (PP) Statistic	-1.907578	0.0282
Panel PP t-Statistic	-12.72139	0.0000
Panel Augmented Dickey-Fuller (ADF)	-6. 775667	0.0000
Hypothesis (Between Dimensions)		
Group PP Statistic	-0.819141	0.2064
Group PP t-Statistic	-17.43789	0.0000
Group ADF t-Statistic	-.7429161	0.0000

Source: Research Findings

Based on the Pedroni cointegration test results, the null hypothesis of no cointegration is rejected with 95% confidence. Therefore, we conclude that a long-term equilibrium relationship exists among the model's variables.

F-Limer Test

If the heterogeneity of parameters across individuals, cross-sections, or over time series is ignored, it can lead to inconsistent or meaningless parameter estimates (heterogeneity bias). In such cases, it is evident that panel data regression models that disregard heterogeneous intercepts should not be used. In the econometric literature related to panel models, the comparison between the common intercept method (pooled model) and the variable intercept method (panel model) for each equation is typically performed using the F-statistic. The superior model is selected based on the hypothesis test of H_0 (Baltagi, 1995).

In this test:

- H_0: Pooled Model
- H_1: Fixed Effect Model

Table (5): Results of the F-Limer Test (Equality of Intercepts)

Statistic	**Value**	Prob
Cross - section F	5.612473	0.000
Cross – section Chi square	37.433621	0.000

Source: Research Findings

The results of the equality of intercepts test in Table (5) indicate that the hypothesis of equal intercepts in the model is rejected. Therefore, the model features different intercepts. In other words, since the p-value of the test statistic is less than 0.05, different intercepts must be considered in the model; hence, the model is of the panel data type.

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Hausman Test

To estimate the equations, it is first necessary to determine whether the random effects method or the fixed effects method is more appropriate based on the characteristics of the model. For this purpose, the Hausman test is used. The Hausman statistic follows a chi-squared distribution. In this test, the null hypothesis (H_0) states that random effects should be used for estimation, while the alternative hypothesis (H_1) emphasizes fixed effects for the model.

Table (6): Results of the Hausman Test

Chi-sq. Statistics	Prob
32.796309	0.0000

Source: Research Findings

Given the p-value of the Hausman test statistic, the null hypothesis is rejected, and the fixed effects method is accepted. In other words, since the p-value of the Hausman test statistic is less than 0.05, the null hypothesis is rejected, and the model is estimated using the fixed effects method.

Following the acceptance of the fixed effects method, to ensure homoskedasticity of the error term and determine the appropriateness of the Ordinary Least Squares (OLS) or Generalized Least Squares (GLS) methods, tests for heteroskedasticity and autocorrelation are also performed.

Heteroskedasticity Test

One of the classical assumptions in regression analysis is the homogeneity of variances across different periods. Violating this assumption leads to the issue of heteroskedasticity. Since the variance of the error term equals the variance of the dependent variable, heteroskedasticity arises when the variance of the dependent variable is not constant across periods. The assumption is that changes in the independent variable do not cause variations in the variance of the dependent variable (i.e., the residuals).

The causes of heteroskedasticity could be related to data collection methods or the increasing number of variables, which can lead the OLS model to the following issues:

1. Although the estimates remain unbiased, they are no longer efficient.
2. The error variance becomes biased.
3. The coefficient variances become biased.
4. F-statistics and t-statistics may become misleading.

In this study, the **Likelihood Ratio (LR) Test** is used to detect heteroskedasticity. The results are presented in **Table (7).**

Table (7): LR Test for Heteroskedasticity

Test Statistic	Value	Probability
LR Test	20.27397	0.0093

Source: Research Findings

The results of the heteroskedasticity test for the regression model indicate that at a 5% significance level, the p-value of the LR test statistic is less than 0.05, making it statistically significant. Additionally, since the calculated value of the F-statistic from the model is greater than the critical value in the table, the null hypothesis (H_0), which assumes homoskedasticity of the error terms, is rejected.

Therefore, the regression model in this study exhibits heteroskedasticity. To address this issue, the **Generalized Least Squares (GLS)** method is employed for model estimation.

Test for Absence of Autocorrelation in Error Terms

In econometric studies based on time series data, the assumption of no autocorrelation in error terms, which is a crucial assumption in classical regression models, is often violated. Therefore, it is necessary to examine the presence of autocorrelation in error terms before interpreting the results. If autocorrelation exists, the OLS estimators are no longer efficient, meaning they do not have the minimum variance among unbiased estimators. As a result, statistical inferences may become unreliable.

To address this issue, the **Pesaran CD Test** is commonly used to detect autocorrelation. The hypotheses for this test are formulated as follows:

- H_0: Error terms are not autocorrelated (absence of autocorrelation).
- H_1: Error terms are autocorrelated (presence of autocorrelation).

Table (8): Pesaran Test for Autocorrelation

Statistic	Value	Probability
Pesaran CD Test	12.71253	0.0000

Source: Research Findings

The results of the autocorrelation test for the regression model indicate that at a confidence level exceeding 95%, the p-value associated with the Pesaran CD test statistic is less than 0.05. In other words, the calculated test statistic exceeds the critical value in the table. Thus, the null hypothesis (H_0), which assumes the absence of autocorrelation, is rejected. This indicates that the error terms of the regression model exhibit autocorrelation.

Test for Normality of Residuals

An important consideration when using regression analysis is the normality of the error terms' distribution in the fitted model. One commonly used test for examining the normality of error terms is the Jarque-Bera Test. The hypotheses for this test are as follows:

- H_0: Error terms follow a normal distribution.
- H_1: Error terms do not follow a normal distribution.

This test assesses whether the skewness and kurtosis of the residuals deviate from those of a normal

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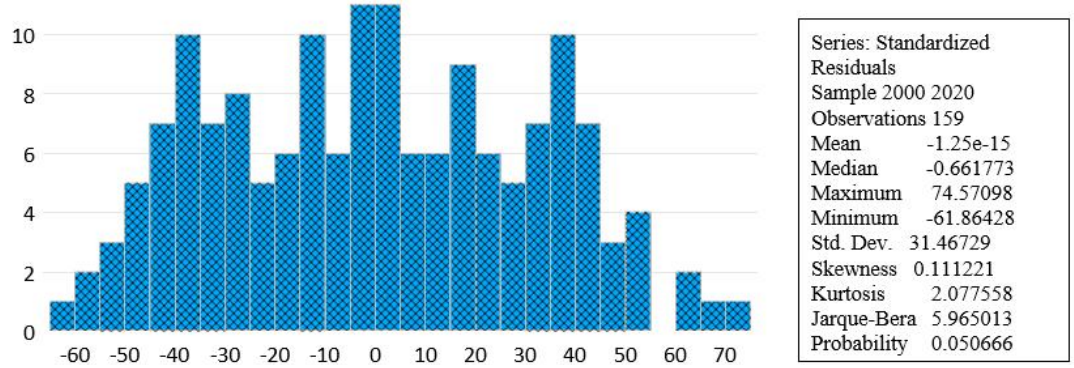
distribution. If the null hypothesis (H_0) is rejected, it suggests that the residuals are not normally distributed, potentially indicating issues with the model's specification or the presence of outliers.



In the Jarque-Bera Test, if the computed value of the Jarque-Bera (JB) statistic is less than the critical value from the chi-squared distribution table, the null hypothesis (H_0) of normality for the error terms cannot be rejected. For the regression model in this study, the significance level of the Jarque-Bera statistic is greater than 5% (critical value: 5.96). Consequently, the null hypothesis is not rejected, indicating that the residuals follow a normal distribution. This result confirms that the normality assumption for the error terms in the regression model is satisfied.

Model Estimation

When the issues of autocorrelation and heteroskedasticity are present in a model, the estimators obtained using the **Ordinary Least Squares (OLS)** method are inefficient. Therefore, the model is estimated using the **Generalized Least Squares (GLS)** method. Unlike OLS, which assigns equal weights to all observations, GLS assigns lower weights to observations with greater dispersion and higher weights to those with less dispersion.

Based on the results of the heteroskedasticity and autocorrelation tests, it was determined that the model suffers from heteroskedasticity. To achieve more efficient estimation, the model was estimated using the GLS method, with results presented in **Table (9)**

Table (9): Model Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Significance
c	119.3321	3.532769	33.77865	0.0000
GDP	-0.238670	0.320174	-0.745438	0.4572
M_t	8.24E-13	5.87E-14	14.05092	0.0000
V_t	-1.275026	0.198162	-6.434256	0.0000
F-statistic	**32.31682**			**0.0000**
R^2	**0.0686**			
Adjusted R^2	**0.0665**			

The results of the model estimation are presented in Table (9). Based on the F-statistic, the overall validity of the model is confirmed. According to the estimation results, the coefficient of the economic growth variable is -0.238. Given its negative sign and insignificance, it can be concluded that economic growth has no significant impact on inflation in SAARC countries during the 2000-2020 period.

However, the variable representing money supply has a positive effect on inflation in the selected countries, with a coefficient of 8.24%. This means that a one-unit increase in the money supply in these countries leads to an increase in inflation by the amount of the coefficient. These findings align with the results of Atrkar Roshan and Ghorey (2012).

Additionally, the results indicate that the coefficient for the velocity of money is negative, demonstrating a significant negative impact on inflation in these countries. Specifically, an increase in the velocity of money results in a decrease in inflation. For the countries analyzed in this study, a 1% increase in the velocity of money reduces inflation by 175.2%.

V. CONCLUSION

The purpose of this study was to examine the impact of money supply and economic growth on the general price level in SAARC member countries. Using annual data from 2000 to 2020 and employing

econometric methods, the relationship was analyzed in the economies of selected countries.

Findings from the regression model estimation (EGLS method) indicate that GDP has not had a significant negative effect on the price index. This is because the average economic growth of these countries during the study period (2000–2020) was 4%, while the inflation rate, measured by the consumer price index (CPI), was 6% annually. In other words, there was no substantial real GDP growth in the countries studied during the 2000–2020 period. Therefore, based on a comparison of economic growth and inflation in the selected countries, as well as the study's findings, inflation—driven by certain factors—has the potential to reduce economic growth. These factors include:

1. **Investment**: Inflation impacts investment through savings. Due to the depreciation of the national currency caused by rising inflation, individuals holding their cash assets as savings incur losses. This negatively affects their tendency to save, leading them to shift towards durable and capital goods like land and houses, which ultimately hampers economic growth.
2. **Price Instability**: High inflation reduces price stability, making it difficult to identify profitable investment opportunities accurately. As a result, investors lose interest in investing, leading to slower growth.
3. **Market Power**: Inflation can increase market power or the degree of monopoly. By heightening uncertainty, price instability, and economic volatility, inflation drives firms out of industries. Consequently, market power negatively impacts productivity, posing detrimental effects on growth.
4. **Production Efficiency**: Inflation also affects the production sector negatively. To preserve their wealth, individuals often prefer to invest in assets whose prices rise with inflation rather than contributing to productive sectors. Inflation alters the asset portfolios of economic agents, causing them to prioritize increasing their cash holdings. As a result, significant amounts of time, energy, and financial resources are diverted from productive activities to speculative or non-productive endeavors.

Additionally, the research findings reveal that the money supply has a positive and significant impact on the general price level, meaning that an increase in the money supply leads to higher prices during the study period. The results also indicate a negative and significant relationship between the velocity of money circulation and inflation during the same period. Specifically, a 1% increase in the velocity of money circulation leads to a proportional reduction in inflation as per the model parameter coefficient. These findings align with previous studies by Komijani and Nagdi (2008) and Atar-Karroshan and Gharahi (2012).

Conclusion: The first hypothesis of the study, which posited a positive relationship between money supply and inflation (addressing the primary research question), is supported by the findings, showing that money supply has a significant and positive effect on inflation in SAARC countries. However, the second hypothesis, regarding the relationship between economic growth and the general price level, does not indicate a significant negative effect.

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