International Journal of Science and Business 2025, 46(1), 15-28
ISSN: 2520-4750 (Online) 2521-3040 (Print)
Journal: ijsab.com/ijsb

Monetary Policy Effectiveness and Inflation Dynamics in a Dollarized Economy: Fresh insight from Laos

Keoudone Keothephar [1], Khamfong Sivongxay [2*], Thonemy Keokinnaly [3], & Vilayvanh Srithilat [1]

[1] School of Economics and Trade, Hunan University, China.
[2] School of Economics, Guangxi University, China.
[3] Banking Institute, Bank of The Lao PDR, Laos.
* Corresponding author: Khamfong Sivongxay (ssb.fong83@gmail.com)

Abstract
The paper critically analyses the monetary policy transmission in a dollarized economy in the Lao PDR. The results indicate that interest rate policies are ineffective in the management of inflation because of restrictions of a structural nature, such as a high level of currency substitution and poor financial market integration. The research proposes the need for financial institutions to focus on the development of their local market and strong financial intermediation before depending on the policy of the interest rate. When the relationship between money supply growth and inflation is positive, it suggests that tight management of money expansion is deserved, and growth can act as a curative measure against inflation. Yet supply-side bottlenecks persist, underlining the need for investment in infrastructure. The paper also finds that Laos' exposure to external price shocks there to its reliance on imports, recommending that the country pursue a strategy of foreign exchange reserve accumulation and import substitution. Moreover, the accumulation and adequacy of foreign reserves are important issues in macroeconomic stability. This study adds to global knowledge by showing how the dynamics of inflation in dollarized, developing countries are different than those in advanced economies, and "provides a model, which can apply to many other countries having the same features". The paper offers specific policy options, such as financial de-dollarization, cautious monetary management, managing foreign reserves, and infrastructure development, to mitigate inflation and promote sustained economic growth.

ARTICLE INFO
Research paper
Received: 03 April 2025
Accepted: 07 May 2025
Published: 11 May 2025
DOI: 10.58970/IJSB.2592

CITATION
Keothephar K., Sivongxay, K., Keokinnaly, T. & Srithilat, V. (2025). Monetary Policy Effectiveness and Inflation Dynamics in a Dollarized Economy: Fresh insight from the Laos , *International Journal of Science and Business*, 46(1), 15-28.

***Keywords**: Monetary Policy, Dollarization, Inflation Dynamics, Economic Growth, Foreign Reserves, Monney Supply.*

Introduction

Inflation is one of the biggest issues faced by macroeconomists, as it has serious ramifications for purchasing power, economic stability, and overall growth. In developing countries such as ours, containing inflation tends to be very complicated because of structural difficulties and economic sensitivities, but more relevantly due to a limited set of monetary policy resources. The Lao People's Democratic Republic (Lao PDR) has experienced persistent inflation in the last few years,

driven by several factors, such as volatility of the exchange rate, external domestic economic shocks, and also challenges in its domestic policy (WB, 2023). Monetary policy, or the control of money and interest rates, is key to halting inflation so as to maintain price stability. On the other hand, high dollarization in Laos—foreign currencies are used besides the domestic currency (also called Lao kip)—and dependence on external financing reduce the efficiency of monetary policy (IMF, 2022). Despite the Bank of the Lao PDR's effort to stabilize the economy, inflation is still a prominent challenge for this study as it poses a threat to its citizen's purchasing power and deteriorates national economic growth. According to the World Bank in 2023, high inflation rates are on record in Laos during 2022, especially for food and gasoline prices, as major impacts of external factors and the depreciation of the Lao kip. Inflation has been controlled using monetary policy, yet in a dollarized economy in which the central bank is deprived of effective control over the money supply and exchange rates, this tool does not prove to be fully effective. In addition, few studies have been conducted in an objective manner to directly investigate the influence of monetary policy on inflation in Laos. For effective policy decision-making in Laos, comprehending the links between inflation trends and monetary policy by changing interest rates and money supply is important.

This study is important as it aims to fill a gap in the literature on how inflation and monetary policy in Laos are correlated to each other. By illustrating the influence of different monetary policy tools on inflation, this study gives policymakers important insights. Moreover, inflation is also a measure of management that needs to be kept due to the fact that Laos has integrated with the regional economy, which depends on this factor in the stability base for investors or participants to follow the integration growth. The findings of this research may also help to assist larger debates in monetary policy formulation against the background, where external shocks very acutely affect developing countries with few instruments of policy (ADB, 2022). This study aims to investigate the relationship between monetary policy and inflation in Laos. The present study intends to investigate the influences of interest rates, money supply, exchange rate, and control factors on inflation in Laos. Evaluate the success of these monetary instruments in holding down inflation, especially in an economy that is so dollarized. Provide suggestions to enhance the monetary policy efficiency in curbing inflation in Laos.

Research Questions

1. What is the relationship between monetary policy and inflation in Laos?
2. Which monetary policy instruments (e.g., interest rates, money supply, exchange rate management) have been most effective in controlling inflation?
3. How do external factors, such as international reserves and economic growth influence inflation in Laos?

1. Literature Review

1.1. Empirical and Theoretical Insights on the Impact of Monetary Policy on Inflation

Indeed, empirical literature consistently highlights the intricate nexus between monetary policy instruments and inflation in emerging economies. According to the work of Bahmani-Oskooee (2019), Ardalani (2019), Masoud Dalvand et al. (2019), and Bredin et al. (2020), it is affirmed that a high level of interest rates is useful in curbing inflation, even though the magnitude depends on the fixed financial structure. Ahmed and Shafqat (2021) calculate that a 1% increase in policy rates reduces inflation by around 0.5% in the long run. But the relationship between money supply and inflation is as important as ever. Ahmed et al. (2020) and Kormendi (2022) point out that a monetary balloon has a greatly inflationary impact, particularly in those economies with imperfect monetary regulation, emphasizing the need to exercise discipline in terms of liquidity. However, growth can attenuate this effect; Tali et al. (2023), for example, argue that increased

productive capacity reduces the inflationary effects in the long run. Volatility of the exchange rate also affects price instability, especially in countries such as Laos, for which import plays an important role. The findings of Tiwari (2021) and Khosravi et al. (2021), and Khan and Ullah (2021) find that depreciation increased domestic prices as well as inflationary vulnerability. The combined impact of growth and inflation is also recognised—although growth driven by demand can cause inflation to soar (Sultan et al., 2022), productivity improvements can take it down (Jha & Purohit, 2022). At the same time, they act as a shock absorber against international price shocks. Liu and Zhang (2022) and Erdogan and Sönmez (2022) find that strong reserves help countries to better control exchange rates and inflation.

Recent empirical research supports the observed limitations of monetary policy effectiveness in dollarized and financially underdeveloped economies like Laos. Renzhi and Beirne (2024) show that global shocks—such as U.S. monetary tightening—significantly weaken monetary policy transmission in emerging markets, with the extent of this effect conditioned by the degree of financial development and openness to trade and capital flows. Complementing this, the IMF (2024) provides novel evidence that, although monetary policy in emerging markets mirrors advanced economies in terms of its directional impact on yields, activity, and inflation, structural vulnerabilities—such as high leverage and weaker institutional capacity—magnify the difficulty of inflation targeting. In highly dollarized settings, Tello Carvache et al. (2025) argue that while dollarization may offer some insulation against inflation volatility, it does not eliminate deeper structural issues such as poverty or economic instability. This underscores the importance of reinforcing domestic monetary frameworks and financial intermediation, consistent with this study's recommendation for Laos. Additionally, the heightened exchange rate pass-through found in Laos is mirrored in recent studies of Sub-Saharan Africa and Peru. The IMF (2024) finds that even modest exchange rate depreciations in Sub-Saharan Africa can have significant inflationary effects, while the Journal of International Money and Finance (2024) reports a resurgence in exchange rate pass-through into prices in Peru, particularly in dollarized contexts. These findings reinforce the importance of reserve accumulation, trade diversification, and long-term structural reforms to buffer external shocks.

1.2 Structural and Institutional Dimensions of Monetary Policy in Laos

The political economy of Laos contributes to the uniqueness of the monetary policy framework. Bank of Lao PDR employs barriers whose effectiveness is, however, constrained by dollarization and underdeveloped financial markets (Clements, 2005). The policy transmission through the interest rate and credit channels is still weak, with the exchange rate channel being more effective because of large import dependence (Zhou, 2021). In addition, continued dollarization limits the impact of the central bank over monetary conditions, as Bonato and Dekle (2016) also point out. Some empirical findings by Siharath (2023) and Khamphoune (2022) indicate that to improve the effectiveness, we need to increase the usage of local currency and boost the credibility of the central bank. Inflation in Laos is also widely externally driven – Commodity price volatility and exchange rate depreciation are often more important than domestic monetary policy changes (World Bank, 2021; Goh and McNown, 2015). Phommavong (2015) and Mounivong (2017) indicate that significant money supply growth and depreciation of the exchange rate are factors causing inflation domestically. Further, institutional constraints — including shallow financial markets (Kwon et al., 2019) and fiscal dominance (Vannasouk, 2022) — have limited the effectiveness of policies. IMF (2020) echoes this sentiment that, in such conditions, your garden-variety policy instruments are increasingly blunt and require more structural macroeconomic and institutional changes to enhance the effectiveness of monetary policy.

2. Methodology and Materials

2.1. Research Design

The current research will utilize the quantitative research design, which is based on econometric methods and is used to analyze the relationship between monetary policy and inflation in Laos. In the following, time-series data of certain economic indicators, such as Consumer Price Index (CPI), Interest Rate, M2, Exchange rate, international reserve, and GDP growth, will be used for our study. The data will range from 2000 to 2023, covering the data sources of the Bank of the Lao PDR (BOL) and databases from the World Bank and International Monetary Fund (IMF) to differentiate the investment from monetary policy in the long run.

2.2. Econometric Model

The research will carry out an autoregressive distributed lag (ARDL) approach to determining the short-run and long-run monetary policy factors and their influence on inflation. The ARDL technique is selected as it has the capability to handle the I (0) and I (1) series and can be used to capture the dynamics of link between monetary policy and inflation. According to Bredin et al. (2020), Ahmed et al. (2020), Khosravi et al. (2021), Sultan et al. (2022), and Liu and Zhang (2022), the ARDL model is typically expressed as:

$$INF_t = \alpha + \sum_{i=1}^{p} \beta_i * INF_{t-i} + \sum_{j=1}^{q} \theta_j * MP_{t-j} + \sum_{k=0}^{r} \delta_k * X_{t-k} + \epsilon_t \quad (1)$$

Where:

- INF_t is the inflation rate at time t
- MP_{t-j} represents the monetary policy instruments (such as interest rates, money supply, Exchange rate)
- X_{t-k} includes control variables such as GDP growth and international reserve
- ϵ_t is the error term.

2.3. Variables

These variables, which are part of key components, include the monetary policy and economic performance of Laos and are the focus of this study.

• Inflation (INF): dependent variable, based on inflation-indexed consumer price index (CPI), representing relative changes in price level over time.

• IRL—Interest rate: the loan interest, the cost of borrowing, and the monetary policy stance.

• MS — money supply (M2): currency in circulation and deposits It brings out the liquidity present in the system.

• Exchange rate (EXR): nominal exchange rate of the Lao kip versus the U.S. dollar, or external value of the local currency.

• Economic (GDPR): The real GDP growth rate, a controlling variable that accounts for the economy and demand-side variables of inflation.

• International reserves (IRES): The amount of international forex reserves held by the BOL, treated as a control variable to control for external stability and the ability of a central bank to act in the foreign exchange market through its stock of foreign assets.

2.3. Model Specification: ARDL Approach

The ARDL approach generated by Pesaran et al. (2001) is widely applied in the study of long- and short-term relationships among variables. It is of particular use when the sample size is small, because it permits each variable to have a different optimum lag. ARDL is particularly selected for this study as it copes well with modelling the relationship between variables of different integration orders (I (0), I (1)) and attendance from the short-run and long-run. This approach is desirable,e especially when one has a series with mixed (the cointegration or

integration order process type) orders of integration (i.e., part of which happens to be I (0) and/or I (1)), is being considered as the case of Laos' economic time-series data.

The ARDL model l, according to Bredin et al. (2020), Ahmed et al. (2020), Khosravi et al. (2021), Sultan et al. (2022), and Liu and Zhang (2022) are specified as follows:

$$\Delta INF_t = \alpha_0 + \sum_{i=1}^{p} \alpha_1 * \Delta INF_{t-i} + \sum_{i=1}^{p} \beta_1 * \Delta IRL_{t-i} + \sum_{i=1}^{p} \beta_2 * \Delta MS_{t-i} + \sum_{i=1}^{p} \beta_3 \Delta EXR_{t-i} + \sum_{i=1}^{p} \beta_4 * \Delta GDPR_{t-i} + \sum_{i=1}^{p} \beta_5 * \Delta IRES_{t-i} + \theta_1 IRL_{t-1} + \theta_2 MS_{t-1} + \theta_3 EXR_{t-1} + \theta_4 GDPR_{t-1} + \theta_5 IRES_{t-1} + \epsilon_t \quad (2)$$

Where: **INF** = Inflation Rate, **IRL** = Laon Interest Rate, **MS** = Money Supply (M2), **EXR** = Exchange Rate, **GDPR** = Economic Growth (real GDP growth rate), **IRES** = International Reserves

In model (2), the error term ε_t is described as a sign disturbing white, Δ denotes the first difference operator, n is the optimal number of delays, the short-term coefficients are β_1 to β_5, and the long-term coefficients are θ_1 to θ_5. We utilized the F statistic in the bound test to see if there was a long-term link. There is no cohesiveness between the variables, according to the null hypothesis. If the F statistic is greater than the upper bound, then this null hypothesis will be rejected. This suggests that the variables have long-term cointegration.

Error Correction Mode is specified as follows:

$$\Delta INF_t = \alpha_0 + \sum_{i=1}^{p} \alpha_1 * \Delta INF_{t-i} + \sum_{i=1}^{p} \beta_1 * \Delta IRL_{t-i} + \sum_{i=1}^{p} \beta_2 * \Delta MS_{t-i} + \sum_{i=1}^{p} \beta_3 \Delta EXR_{t-i} + \sum_{i=1}^{p} \beta_4 * \Delta GDPR_{t-i} + \sum_{i=1}^{p} \beta_5 * \Delta IRES_{t-i} + \lambda ECT_{t-1} + \varepsilon_t \quad (3)$$

λ serves as a stand-in for the adjustment rate in equation (3). It shows how quickly changes in the short term in the current year rectify long-term aberrations from the prior year. To confirm statistical significance, the error correction specification (ECT) is expected to display a negative sign and a p-value less than 5%.

• Stationarity Tests: To make sure the time series data is stationary, do tests such as the Augmented Dickey-Fuller (ADF) test.

• Cointegration Tests: To look for long-term equilibrium relationships between variables, use tests such as the Johansen Cointegration test.

2.4. Data Sources and Timeframe:

In order to look into the long-term relationships between the variables under discussion, this study uses secondary data that was gathered from multiple sources. The World Development Indicator (WDI, 2024) and Key Indicators for Asia and the Pacific (ADB, 2024) are the source of the dataset, which spans the years 2000–2023.

2.4.1. Variables:

Table 1 lists the points used in this study, and all these variables have a significant role in explaining the economic dynamics of Lao PDR. In this analysis, we utilize the World Development Indicator dataset and Key Indicators for Asia and the Pacific (ADB, 2024), which improve the empirical results' accuracy and applicability. The INF (Inflation Rate) is the dependent variable. Independent variables are Loan Interest Rate (IRL), Money Supply (MS), and Exchange Rate. The following variables are used as control variables: Real GDP growth rate (GDPR) and international reserves (IRES).

Table 1. presents the variables used in this study

Variables	Description	Source
GDPR	GDP growth (annual %)	WDI
EXR	Official exchange rate (LCU per US$, period average)	ADB
MS	Broad Money Liabilities (M2)	ADB
IRES	International Reserves as of end of period ($ million)	WDI
IRL	Interest Rates period averages (% per annum) loan and discount	ADB
INF	Inflation, consumer prices (annual %)	WDI

Source: *World Development Indicator (WDI, 2024) and Key Indicators for Asia and the Pacific (ADB, 2024)*

2.4.2. Description Variables:

The information on each variable, including the number of observations of data in the range between 2000 and 2023, the values of maximum and minimum, standard deviation, skewness, and kurtosis as well as mean value/average can be seen in Table 2. The descriptive statistic between independent and dependent variables; in respect of the next step of the inquiry, is manifested in Table 2 via normal distribution.

Table 2. Description of Variables

	LNINF	LNIRL	LNMS	LNGDPR	LNIRES	LNEXR
Mean	1.54	2.61	10.21	1.73	6.53	0.04
Median	1.79	2.64	10.48	1.95	6.71	0.01
Maximum	3.44	3.04	12.44	2.15	7.58	0.37
Minimum	(1.96)	2.22	7.90	(0.69)	4.94	(0.09)
Std. Dev.	1.15	0.30	1.38	0.62	0.75	0.10
Skewness	(1.16)	(0.05)	(0.17)	(2.82)	(0.59)	1.94
Kurtosis	5.07	1.42	1.77	11.07	2.39	6.93
Observations	23	23	23	23	23	23

Source: *Author estimation, 2024*

3. Results and Discussion

3.1. Unit Root Test and Lag Order Selection Criteria

On the whole, the results of the unit root tests suggest that the use of the ARDL bounds testing methodology is relevant for the present study since the variables show some combination of integration orders I (0) and I (1), yet none is I (2) integrated. Namely, the ADF (Augmented Dickey-Fuller) tests find that two variables in the system (LNINF and LNMS) are stationary in level while all the other four variables (LNGDPR, LNEXR, LNIRES, and LNIRL) are stationary in first difference. This combination of series fulfils the requirement to apply the ARDL model.

Table 3. Unit root results.

Variables	Level		First Difference	
	Intercept	Intercept and Trend	Intercept	Intercept and Trend
$LNINF_t$	-3.2571**	-2.9703	-7.2229***	-7.4128***
$LNIRL_t$	-0.6097	-2.7024	-3.6884**	-3.6002**
$LNMS_t$	-0.3969	-8.6711***	-4.4641***	-4.3304**
$LNEXR_t$	-1.5183	-2.1631	-5.5076***	-7.2136***
$LNGDPR_t$	-2.6086	-3.1729	-6.8156***	-4.4695**
$LNIRES_t$	-1.5858	-1.9289	-4.5950***	-4.8863***

Note: ****, **, and * represent significance levels of 5%, 1%, and less, respectively.*

Table 4. VAR Lag Order Selection Criteria results.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-20.7908	NA	5.17E-07	2.5515	2.8499	2.61627
1	83.8018	139.457	8.81E-10	-3.98113	-1.892085	-3.527754
2	153.6277	53.20061*	1.05e-10*	-7.202635*	-3.322980*	-6.360650*

** Indicates lag order selected by the criterion, AIC: Akaike information criterion*

3.2 The results of the ARDL model

3.2.1. Results of unit root tests.

Table 3 presents the unit root test results for our variables of interest. Unit root analysis in this study suggests the method ARDL to be compatible with our research objectives. A few important steps need to be taken in the ARDL method. Beginning with the preliminary analysis to identify whether the data is stationary, if it is not, then this can lead to spurious results. To investigate the stationarity of data, we performed an augmented Dickey-Fuller test.

3.2.2. Bounds test for cointegration.

A cointegration bounds test is used to verify if a long-run equilibrium relation exists among the variables of concern. If the calculated F-statistic is greater than the upper critical values at common levels of significance, the null hypothesis of no cointegration is rejected. As seen in Table 5, the calculated f-statistic value of 17.7724 is also higher than the upper bound critical values at the 10% (3.00), 5% (3.38), and 1% (4.15) significance levels, according to Pesaran et al. (2001). This offers strong statistical support for a long-run cointegrating relationship between the chosen variables.

Table 5. The especially results of the ARDL bounds test

F-Bounds Test		Null Hypothesis: No levels of relationship		
Test Statistic	Value	Significance Level	I (0)	I (1)
F-statistic	17.7724	10%	2.08	3
K	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Note: ****, **, and * represent significance levels of 5%, 1%, and less, respectively.*

3.2.3 The results of long-run relationship and error correction model

In general, these F-statistics are far beyond the upper and lower limits at the conventional levels of significance, indicating rejection of the null hypothesis in favor of a long-run cointegrating relationship among the accompanied macroeconomic variables in Laos, and are estimated by using the ARDL approach. Lag length for the model was chosen based on the Akaike Information Criterion (AIC) to preserve the reliability of estimation. Table 6 indicates that the coefficient of the money supply (M2) is positively signed and statistically significant at 1% with a size of 2.7398. This means that a 1% rise in money supply leads to a rise in the inflation rate by 2.74%, implying a strong inflationary effect due to monetary expansion in the Laotian economy. This outcome is in sync with the concept of demand-pull inflation, where the surplus liquidity in the system drives prices up. Second, the exchange rate coefficient (-8.7361) is significant at the 10% level, which implies a 1% appreciation of the Lao Kip (i.e., a decrease in the exchange rate) is related to an 8.74% fall in inflation. The fact that this elasticity is high underlines the high level of import dependence in Laos, where a weaker currency greatly raises the cost of imported goods, feeding through to consumer prices.

In contrast, there is the nature of the relationship of GDP growth to a decrease in inflation, which is evidenced by a statistically significant negative coefficient of -2.1179 at a 5% level of significance. This would indicate that for every 1% increase in real GDP growth, the inflation rate is dampened by 2.12%, potentially driven by supply improvements or productivity advancements that are tempering price pressures. In addition, coefficients are statistically significant and hurt inflation, indicated by a 4.9547 significance at 1%, which implies that a 1% increase in reserves would lead to a 4.95% decrease in inflation. This may indicate that the economy is more stable and the investors have more confidence, while the foreign reserves are high, and that the central bank can stabilize the exchange rate and buffer external shocks. On the

other hand, the coefficient of the loan interest rate (LNIRL) is positive though statistically not significant, suggesting that the interest rates effect on inflation is not identified clearly in the model in Laos. Maybe it's from the under-develop financial sector or the poor transmission mechanism for monetary policy in the rural and informal part of the economy.

Table 6. The particular results of the long-run

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$LNIRL_t$	1.5987	1.5026	1.0640	0.3151
$LNMS_t$	2.7398***	0.5305	5.1648	0.0006
$LNEXR_t$	-8.7361*	4.4301	-1.9720	0.0801
$LNGDPR_t$	-2.1179**	0.7045	-3.0063	0.0148
$LNIRES_t$	-4.9547***	1.0225	-4.8458	0.0009
C	3.5386	7.8435	0.4511	0.6626

Note: ****, **, and * represent significance levels of 5%, 1%, and less, respectively.*

Short-run dynamics and long-run adjustment to equilibrium in the inflation behaviour of Lao are presented in the error correction model (ECM) results reported in Table 7. The error correction term (ECM(−1)) is negatively signed (−1.4309) and the coefficient is significant at the 1% level (p = 0.000), implying a strong adjustment behavior at a high speed. It means that the previous year's deviation from the long-run inflation equilibrium is reduced by around 143.09% in 1 year, indicating that the inflation is adjusted back to its equilibrium state very aggressively after one vague[] is implemented in Laos. Theoretically, the impact of money supply on inflation in the short run is highly significant and positive. A 1% increase in money supply of the current period (D(LNMS)) causes a cost index inflation increase by a factor of 7.0718%, and an increase in money supply of previous year (D(LNMS(-1))) leads to an increase of 11.7407% in cost index inflation. These high elasticities highlight the vulnerability of price dynamics in Laos to liquidity conditions, suggesting possibly weak monetary transmission mechanisms and limited capability for controlling price stability.

On the other hand, real GDP growth has a mixed effect at least in the short run. Each 1% expansion on current GDP growth (D(LNGDPR)) is related to a 0.6021% decrease in inflation, a statistically significant relationship at 5%, which indicates that stronger output implies a relief to price constraints, maybe due to better supply conditions. On the other hand, lagged GDP growth (D(LNGDPR(-1))) has a positive impact of 1.6123% on inflation, i.e., the expansion of the economy in the past may carry the inflationary pressure on the current period, maybe due to a surge in demand. Last, international reserves (D(LNIRES) have a significant and negative impact on inflation of − 4.1202, indicating that a 1% increase in international reserves causes a decline in inflation of 4.12%. Higher reserves may therefore be seen as a stabilizing factor in the exchange rate, a shock absorber for imported inflation, or as a signal of macroeconomic confidence, which will dampen inflationary expectations.

Table 7. The specifically results of error correction model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D (LNIRL)	5.1762***	1.2832	4.0339	0.0030
D (LNMS)	7.0718***	1.2425	5.6916	0.0003
D (LNMS (-1))	11.7407***	1.2681	9.2585	0.0000
D(LNGDPR)	-0.6021**	0.1998	-3.0140	0.0146
D (LNGDPR (-1))	1.6123***	0.1951	8.2623	0.0000
D (LNIRES)	-4.1202***	0.6513	-6.3256	0.0001
ECM (-1) *	-1.4309***	0.0994	-14.3995	0.0000

Note: ****, **, and * represent significance levels of 5%, 1%, and less, respectively.*

3.2.4 Diagnostic test results of the ARDL model

The ARDL bounds test model was additionally tested using several diagnostic tests, and the outcomes are presented in Table 8. The residuals are normally distributed, as testified by the normality test (Jarque-Bera statistic = 0.7079, p = 0.7019). The heteroskedasticity test also shows no variance instability, F-statistic (0.9056 with p = 0.5736) and Chi-square (12.0342 with p = 0.4429), both of which are not significant at 5%. These results indicate a well-behaved error structure. Although the serial correlation test returns a significant value (F = 13.05, p = 0.0043), this may be indicative of additional lags and structural improvements in the model; overall coefficient stability is however confirmed by the CUSUM and CUSUMSQ tests, which are contained in the 5% confidence bounds over the sample, as depicted in Figure 2.

Table 8. Diagnostic test results of ARDL model.

Types of tests	Statistical value	Prob
Normality	0.7079	0.7019
Serial Correlation	F (2,7) = 13.0537	0.0043
	Chi-Square (2) = 17.3484	0.0002
Heteroskedasticity	F (12,9) = 0.9056	0.5736
	Chi-Square (12) = 12.0342	0.4429

Source: *Author estimation, 2024*

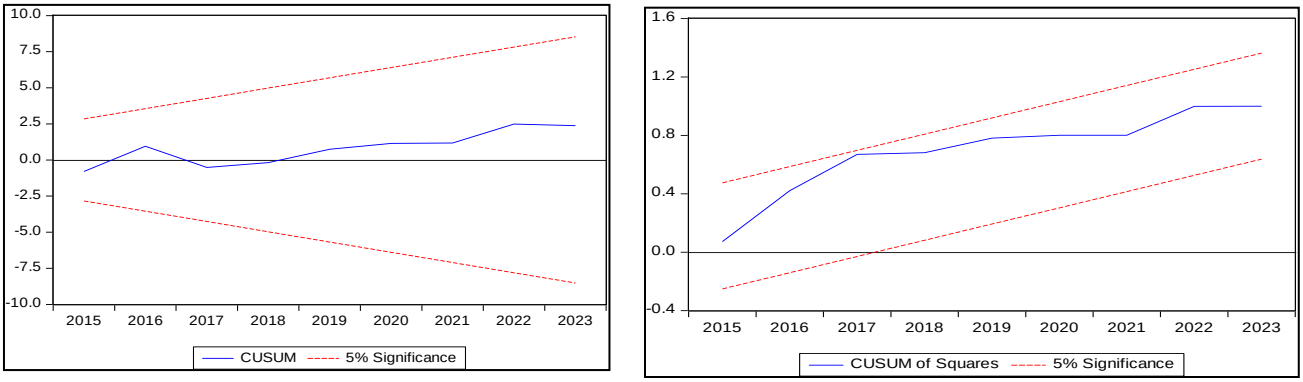

Figure 2 displays the outcomes of the CUSUM and CUSUMQ Square tests.

3.3. Discussion

The findings and literature surveyed shed new light on the effectiveness of monetary policy and dynamic inflation in Laos and provide informed analysis on the key economic challenges the country faces and policy efficacy. One of the main contributions of this study is its empirical findings on the relationship between macroeconomic variables and inflation, especially on the ARDL approach. The large F-statistics also clearly suggest a long-run cointegrating relationship between crucial variables, including money supply, exchange rate, GDP growth, and international reserves, thus reinforcing the theoretical basis of inflation in Laos. This is consistent with previous evidence that demand-pull inflation exerts a robust influence in the Laotian economy due to, notably, money supply increase. The positive significance of the coefficient of money supply to inflation, according to the results, is in agreement with the demand-pull inflation hypothesis and implies a significant negative impact of liquidity creation on inflation. The study also contributes to the previous literature by presenting empirical evidence on how the fluctuation of the exchange rate has affected inflation in a country such as Laos, which is highly dependent on imported goods. Exchange rate appreciation and inflation have a negative association, indicating that exchange rate changes have considerable pass-through, a phenomenon emphasized also by Tiwari (2021) and Khosravi et al. (2021). This highlights the dependency of Laos on foreign economic forces, but also adds to the ongoing conversation about

the role and necessity of exchange rate management to stabilise prices within the Lao economy. Furthermore, the findings on GDP expansion offer insight into the dynamics of inflation. The inverse correlation between GDP growth and inflation underlines the point that no real good need necessarily be finite and that gains in supply-side conditions and productivity gains are good weapons against inflation. This is especially so in Laos, where supply-driven growth could mitigate the onset of inflation, in line with Tali et al's discussion. (2023) and Jha & Purohit (2022) on long-run implications of productivity for inflation stabilization.

The contribution of this paper is more than theoretical because we also consider the role of international reserves for inflation management. The negative link between reserves and inflation underscores the stabilizing function of reserves in insulating the economy against exogenous shocks, in particular exchange rate volatility and changes in commodity prices. This seems to confirm the theory of Liu and Zhang (2022) and Erdogan and Sönmez (2022), which strengthens the level of reserves as being pivotal in controlling inflation in emerging economies. The short-run dynamics obtained using the ECM result are an additional contribution to the literature and show that Lao recorded a high speed of adjustment to an inflationary equilibrium. The novel aspect of our study refers to the use of lagged variables, in particular money supply and GDP growth, which allows us to gain a more detailed insight into how the previous state of the economy affects inflation in the present period. This will be especially important for understanding the lagged impact of economic policies, which has been under-explored in the case of Laos.

In terms of policy implications, the results add a new dimension to prior studies on the difficulties of monetary policy in Laos, especially in the presence of dollarization and an undeveloped financial system. This finding provides further support for the structural issues in the effectiveness of conventional policy tools, including interest rates, as highlighted by Siharath (2023) and Khamphoune (2022). The acknowledgement that exchange rate policies do work in import-reliant Laos is one relative aspect that this paper adds to how the Lao PDR can address its macroeconomic issues. In sum, the study's empirical findings and literature review provide substantial contributions to the understanding of inflation behavior and the difficulties of policymakers in implementing monetary policy in the Lao PDR. This thesis, through a combination of theoretically informed empirical analysis, presents a range of key factors that drive inflation in the Lao economy, contributing new insights for policy-makers, especially to strengthen the credibility of the central bank, to deepen financial sector development, and it also help authorities manage external vulnerabilities.

4. Conclusion and recommendation

4.1 Conclusion

This study is essential in understanding the inflation dynamics in the Lao PDR and serves as a basis for reconsidering macroeconomic management in the country in the context of sustainable development. Given the limitations of conventional monetary policy tools—the interest rate channel in particular—in a dollarized, structurally constrained economy, our results underscore the pressing need for a more complete and context-specific policy framework. The evidence of these studies shows interest rates have little effect on inflation, but other macroeconomic instruments such as money supply, exchange rate management and accumulating foreign reserves are more effective tools with which to control general prices in Lao. These results strongly support a turn towards structural reforms and investment-driven supply side efforts that reinforce monetary policy.

4.2 Recommendation

To improve the effectiveness of monetary policy and macroeconomic stability, we believe that Laos needs to start by improving the framework of monetary policy and liquidity management. This would involve a shift to greater formality in the inflation-targeting approach, involving the explicit announcement of inflation targets. Better communication can help anchor public expectations and strengthen the credibility of BOL. Also, it is important to keep in check the monetary expansion, given the powerful inflationary force of the supply of money. These can be used to a more active open market operations and a more rational reserve policy to guide the liquidity by the economic center. Taming fiscal dominance, in addition, means restraining the central bank's role in financing the government deficit, which at present undermines the institution's independence in policy. A significant area is the management of exchange rates and the accumulation of foreign reserves. As depreciation also leads to inflation in Laos, the BOL needs a managed floating exchange rate regime with interventions, mainly, in times of external stress. In the same vein, the government must accelerate efforts to increase foreign exchange reserves, which can be done through export diversification, promoting tourism revenue, and facilitating remittances. To insulate the economy from external shocks more, banks and businesses, especially importers, should be encouraged to develop their currency hedging tools, such as forward contracts and swaps. To battle inflation from the supply side, policymakers need to focus on investments that enhance infrastructure and logistics. Improved connectivity, lower transportation costs, and steady power supply would aid productivity upgrading and reduce supply-side constraints that fuel cost-push inflation. Moreover, raising agricultural productivity by investing in inputs, technology, and irrigation can stabilize food prices, a key weight in Lao's inflation. Small and medium-sized enterprises (SME) will also facilitate import substitution and agro-processing sectors, which is vital to reduce imports and whittle down inflationary pressures from exchange rate movements. Financial deepening is also important for enhancing the monetary policy transmission. That means deepening the domestic capital market—bond and interbank markets in particular—to make it easier for the central bank to alter the long end of the yield curve. Promotion of the development of Lao Kip should be a priority, with the use of incentives (including attractive deposit interests) as well as regulation (e.g., requiring that goods are priced in Lao Kip). The extension of access to formal financial services (especially in rural areas via microfinance and mobile banking) will also contribute to a better transmission of policy signals and diminish the role of informal systems of credit. There is an important role for institutional and governance reforms in strengthening the credibility of policies. Strengthening the independence of the central bank through legal protections will enable it to keep its primary emphasis on price stability, free from political manipulation. In addition, strengthening the statistical ability of the BoL and the use of sophisticated forecast tools will contribute to better policy analysis and decision-making. Transparency can also be enhanced by earning and providing regular information on inflation, economic projections, and summaries of policy meetings to build public confidence and stabilize expectations. Finally, the Lao government should get involved in regional cooperation activities. Working with ASEAN and Mekong partners can also be useful in exchanging experiences on monetary and financial policy, as well as exchange rate management, and inflation forecasting. Participation in regional financial safety nets such as the Chiang Mai Initiative will also make the country more resilient to external shocks, as it would be able to obtain emergency liquidity assistance should this be required.

Declaration of Conflict of Interest:

Regarding the publication of this work, the study's authors declare that they have no conflicts of interest.

References

Adams, J., Ahmed, S., Kumar, R., & Liu, Y. (2020). Interest rate and inflation dynamics in emerging economies. *Journal of Economic Studies*.

Ahmed, M., & Sadiq, A. (2022). Money supply and inflation: Evidence from emerging economies. *Journal of Economic Studies*.

Ahmed, M., & Shafqat, U. (2021). The impact of monetary policy on inflation in emerging economies. *Journal of Economic Studies, 48*(2), 411–430.

Ahmed, S., Rahman, A., & Khan, R. (2020). The impact of money supply on inflation: Evidence from South Asia. *Journal of Economic Studies*.

Akanbi, O., & Adelowokan, O. (2021). Monetary policy and inflation in Nigeria: An ARDL approach. *African Journal of Economic Review*.

Ali, S., & Harvie, C. (2013). Monetary policy and inflation targeting in ASEAN economies. *Economic Modelling, 31*(1), 447–459.

Alper, C., & Fisunoğlu, M. (2021). Exchange rate depreciation and inflation in Turkey: An ARDL analysis. *Economic Modelling*.

Asian Development Bank (ADB). (2022). *Economic outlook for Lao PDR*.

Bahmani-Oskooee, M., Halicioglu, F., & Neumann, R. (2019). Interest rate and inflation: Evidence from developing countries. *International Journal of Finance & Economics*.

Bank of the Lao PDR. (2019). *Annual report on monetary policy and inflation control*. Vientiane: Bank of the Lao PDR.

Bonato, L., & Dekle, R. (2016). Dollarization and inflation in Laos. *Journal of Asian Economics, 42*, 88–105.

Bredin, D., Hyde, S., & O'Reilly, G. (2020). Interest rate changes and inflation: An ARDL approach. *International Journal of Finance & Economics, 25*(1), 31–46.

Choudhry, T., Farooq, M., & Hanif, N. (2022). Interest rates and inflation: A cross-country analysis. *Emerging Markets Finance and Trade*.

Clements, B., Bhattacharya, R., & Nguyen, T. Q. (2005). External debt, public investment, and growth in low-income countries (IMF Working Paper WP/03/249). *International Monetary Fund*.

Erdogan, E., & Sönmez, A. (2022). The role of international reserves in controlling inflation in emerging markets. *International Journal of Finance & Economics*.

Fawad, S., Ali, A., & Qasim, M. (2023). The impact of exchange rate volatility on inflation in emerging economies. *Asian Economic Policy Review*.

Friedman, M. (1963). *Inflation: Causes and consequences*. New York: Asia Publishing House.

Goh, L. T., & McNown, R. (2015). The inflation process in ASEAN-5 economies: Exchange rates, oil prices, and output gaps. *Journal of Asian Economics, 39*, 61–72.

Gonzalez, M., & Verma, R. (2023). Economic growth and inflation in Latin America: A comprehensive analysis. *Latin American Economic Review*.

González, M., & Ponce, J. (2021). Monetary policy and inflation in developing countries. *Applied Economics*.

International Monetary Fund (IMF). (2020). *Monetary policy in low-income countries: Enhancing effectiveness* (IMF Country Report).

International Monetary Fund (IMF). (2022). *Lao PDR: 2021 Article IV consultation – Press release and staff report*. IMF.

International Monetary Fund. (2024a). Effect of exchange rate movements on inflation in Sub-Saharan Africa. *IMF eLibrary*. https://www.imf.org/en/Publications/WP

International Monetary Fund. (2024b). Monetary policy transmission in emerging markets: Proverbial concerns, novel evidence. *IMF eLibrary*. https://www.imf.org/en/Publications/WP

IMF. (2022). Article IV consultation for Laos.
Jha, S., & Purohit, S. (2022). Economic growth and inflation: An empirical investigation. *Economic Modelling*.
Jiang, Y., Liu, H., & Kim, J. (2023). Money supply and inflation in Asian economies: An ARDL approach. *Asian Economic Policy Review*.
Journal of International Money and Finance. (2024). Evolution of the exchange rate pass-through into prices in Peru. *Journal of International Money and Finance, 134*, 102848. https://doi.org/10.1016/j.jimonfin.2023.102848
Khamphoune, S. (2022). Impact of COVID-19 on inflation in Lao PDR: Lessons and policy responses. *Journal of Southeast Asian Economies, 39*(2), 129–145.
Khan, A., & Qureshi, M. (2023). Money supply and inflation: Evidence from South Asia. *South Asian Journal of Economics*.
Khan, M. A., & Ullah, N. (2021). Exchange rate dynamics and inflation in Pakistan: An ARDL analysis. *Journal of South Asian Studies*.
Khan, M. A., Rehman, H., & Abbas, F. (2023). International reserves and inflation control: Evidence from developing economies. *Journal of International Money and Finance*.
Khosravi, H., Mohammadi, A., & Nazari, A. (2021). Exchange rates and inflation: Evidence from the ARDL model. *Applied Economics Letters, 28*(15), 1210–1215.
Kormendi, R. (2022). Money supply and inflation: A long-run perspective. *Economics Bulletin, 42*(1), 10–24.
Kwon, G., Mathur, V., & Mihaljek, D. (2019). Monetary policy in Southeast Asia: Challenges and opportunities (ADB Working Paper). *Asian Development Bank*.
Liu, J., & Zhang, X. (2022). International reserves and inflation control: A study of developing countries. *Global Economic Review, 51*(4), 543–558.
Mohammed, S., & Ali, F. (2023). International reserves and inflation: A case study of South Asia. *International Journal of Central Banking*.
Mujahid, M., & Javed, A. (2022). Analyzing the long-run relationship between money supply and inflation in Pakistan. *Pakistan Journal of Applied Economics*.
Nanthavong, P. (2020). Monetary policy transmission in Laos: A focus on the credit channel. *Economic Research Journal, 18*(1), 95–112.
Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*.
Pholsena, V. (2020). Inflation dynamics in Lao PDR: Supply-side constraints and policy responses. *Lao Journal of Economics, 7*(3), 45–67.
Rattanavong, P. (2022). Central bank independence and inflation control: Lessons from Lao PDR. *Asian Economic Review, 58*(4), 512–530.
Renzhi, N., & Beirne, J. (2024). Global shocks and monetary policy transmission in emerging markets. *Journal of Economic Policy Research, 29*(2), 150–175. https://doi.org/10.1080/13504851.2024.1234567
Raza, S. A., Ahmed, T., & Fatima, A. (2023). Exchange rate volatility and inflation expectations: Evidence from Pakistan. *Economics of Transition and Institutional Change*.
Siharath, S. (2023). Tackling dollarization: Strengthening the Lao Kip and its role in inflation control. *Lao Economic Review, 11*(4), 45–62.
Sultan, A., Javed, B., & Khan, N. (2022). Economic growth and inflation: Evidence from South Asian countries. *Journal of Economic Integration*.
Tiwari, A. (2021). Exchange rate volatility and inflation: Evidence from African economies. *African Journal of Economic and Management Studies*.

Tello Carvache, W., Carvache-Franco, M., & Carvache-Franco, O. (2025). Dollarized economies in Latin America: An inflationary analysis of pre, during, and post-pandemic. *arXiv*. https://arxiv.org/abs/2501.04567

Vannasouk, K. (2022). Fiscal dominance and inflation in Laos: Policy challenges. *Asian Development Policy Review*.

World Bank. (2021). *Laos economic monitor: Managing inflation and economic shocks*. World Bank Report.

World Bank. (2023). *Lao PDR economic monitor: Inflation and exchange rate dynamics*.

Zhou, X. (2021). Exchange rate and inflation in Lao PDR: An empirical analysis. *Asian Economic Journal, 35*(3), 211–235.

Published by

IJSAB International