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# Monetary Policy and Export Dynamics in a Dollarized Economy: Evidence from the Lao PDR

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ABSTRACT

This paper examines the impact of monetary policy on export performance in a highly dollarized and resource-reliant economy in the Lao PDR. The aim is to assess the role of key monetary variables, including interest rates, money supply, inflation, exchange rate, international reserves, and FDI, on export dynamics in the short and long run. It employs an ARDL and an ECM using annual time series data from 2000 to 2023.

The long-run results indicate that high loan interest rates and exchange rate depreciation hurt exports, while inflation and the money supply have both positive and mixed effects. In the short run, the ECM exhibits a strong adjustment mechanism towards equilibrium, and the adjustment is particularly sensitive to changes in interest rates, money supply, foreign reserves, inflation, and the exchange rate. FDI has a lagged positive impact, indicating that it plays a role in the development of long-run export capacity. These results highlight the limitations imposed by structural factors, such as underdeveloped financial intermediation and dollarization, on the effectiveness of traditional monetary policy. Policy prescriptions that emerge include better monetary transmission mechanisms, a well-managed exchange rate regime, and export diversification, as well as the prudent use of reserves.

The study contributes to the relatively few empirical works focused on the Lao PDR and highlights the significance of a contextually determined monetary policy in small, open, and less developed economies. The work also recommends subsequent research to verify an interaction effect, incorporating sector-specific and institutional factors that would further explain the relationship.



## 1. Introduction

Monetary policy has a significant impact on macroeconomic stability and the performance of the external sector, particularly in terms of export growth. In a small, open, and less developed economy like the Lao PDR, which is highly dependent on exports, understanding the mechanisms through which monetary policy influences exports are crucial for achieving successful and sustainable economic development.

This research is significant because exports are an essential factor in Lao economic growth and a key source of foreign exchange. In such an environment of growing global uncertainty and regional trade integration (through its attachment to ASEAN and the Regional Comprehensive Economic Partnership (RCEP)), the effectiveness of policy instruments, such as monetary policy, in improving Laos' export performance needs to be examined. Here, we contribute to the literature on macroeconomic policy-making by providing an understanding of the degree to which monetary policy instruments are effective in influencing trade competitiveness in Lao PDR (IMF, 2023).

Laos has a managed floating exchange rate system, and the Bank of the Lao PDR (BOL) has progressively employed more indirect monetary policy instruments, such as open market operations and reserve requirements. The country has been confronted with factors such as currency devaluation, inflation, and trade deficits in recent years (World Bank, 2024). These challenges raise the

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issue of whether the present monetary policies are conducive to their objectives of increasing exports, particularly in non-resource sectors such as agriculture, garments, and hydropower (Asian Development Bank (ADB, 2023).

Laos has implemented some reforms in its monetary policy but has struggled to maintain steady export growth. Depreciating the currency typically a tool to make exports more competitive has failed to produce the kind of export volume or diversification that many had hoped for. This has important implications for the efficacy and transmission channels of monetary policy in the Lao PDR. Can the central bank's instruments improve the country's export price competitiveness? What are the barriers to monetary policy being more effective in supporting exports?

Although there is a wide range of literature on the effect of monetary policy on exports worldwide, research specializing in landlocked and low-income countries, particularly in Laos, remains limited. Most studies concentrate on larger ED markets, such as China and India, or disregard the institutional and structural barriers in smaller economies like Laos. Furthermore, the link between exchange rate management, inflation management, and export performance has not been thoroughly analyzed in the case of Laos (Nguyen & Vo, 2021; IMF, 2023).

The strength of the Lao PDR's export base also leaves it heavily exposed to instability in global commodity prices and demand for resource-based products, such as copper, gold, and electricity. Non-resource exports have not taken off, in part due to structural problems in the domestic economy, including insufficient credit, infrastructure deficiencies, and poor policy coordination (World Bank, 2024). Furthermore, the depreciation of the kip has not had a significant impact on exports and, thus, also on the effectiveness of monetary policy (Bank of the Lao PDR, 2023).

The specific aims of this study are:

• To examine the short and long-run effects of monetary policy instruments on the export performance of Loas.

• To explore the structural and institutional influences on the effectiveness of the monetary policy transmitted to exports in Laos.

This paper aims to empirically investigate the impact of monetary policy on export performance in Laos, with a particular focus on examining the efficiency of exchange rate and interest rate channels. The results are intended for policymakers and provide insight in the form of recommendations on how to enhance the connections between exports and monetary policy instruments?

## 2. Literature Review

There is extensive literature on the impact of different monetary policy instruments on the export performance of economies worldwide. The volatility of the exchange rate, for example, is frequently considered a significant obstacle to export expansion, especially in developing countries, due to the uncertainty it generates (Bahmani-Oskooee & Hegerty, 2007). Likewise, an increase in the money supply (M2) could also generate inflationary pressures that might erode export competitiveness through higher local prices (Arize, Osang and Slottjee, 2000). Interest rate changes also have dual effects for the same reason: higher rates may be used to encourage foreign capital influx, but such policy tightening will also appreciate the exchange rate, thereby making exports less competitive. Conversely, rising international reserves are commonly perceived as an indicator of macroeconomic stability and may enhance confidence in exports (Obstfeld, Shambaugh, & Taylor, 2010). Moreover, the export supply capacity may expand as the GDP grows; However, international competitiveness may not necessarily increase (Rodrik, 2008).

In the ASEAN context, analyses such as those by Siregar and Rajan (2006) have highlighted the role of managed exchange rate regimes in stabilizing trade flows, particularly during periods of economic turbulence. There has been some conflicting evidence on the effects of monetary policy on exports. For instance, Bahmani-Oskooee and Wang (2022) suggest that currency depreciation is associated with an increase in exports in the short term in East Asian countries; however, this effect fades away in the long term. Likewise, the IMF (2024) further stressed that the pass-through of monetary policy to external trade tends to be weak in countries with underdeveloped financial markets and low monetary independence a phenomenon reflected in Laos. Therefore, a country-based study is necessary. However, the empirical literature on Lao PDR is scarce in this regard. Among several research articles, Phouphet & Douangngeun (2017) found that currency devaluation improves exports, but this effect is shown with a lag.

However, the underdeveloped financial markets of the country and the high degree of dollarization dilute the effectiveness of traditional monetary policy transmission channels. Additionally, Bouphavanh & Southisane (2021) found that key instruments, such as interest rates and inflation targeting, have a limited transmission effect due to the thinness of the domestic money market. Institutional sources such as the IMF (2023) and ADB (2022) substantiate such observations, commenting that the monetary policy moves in Laos are hampered by important structural obstacles, including a low level of financial sector development, dependence on a few export goods (predominantly hydropower, extraction industry and agriculture) and a wide network of utilization of foreign currencies.

Lao PDR operates in a complex macroeconomic and financial environment where traditional monetary policy tools are limited. The Bank of the Lao PDR has limited ability to stimulate domestic economic activity through conventional channels, such as interest rate adjustments or liquidity injections, due to the underdeveloped financial markets and the shallow depth of the financial sector (IMF, 2023; Bouphavanh and Southisane, 2021). There is also a high degree of dollarization—excessive use of the US dollar and the Thai baht—that weakens the channels of monetary policy transmission, especially those linked to the exchange rate and interest rates (ADB, 2022). The country's export structure is highly concentrated in a few sectors, particularly hydroelectric power, mining, and agriculture, leaving it vulnerable to external shocks, notably changes in commodity prices and fluctuations in regional demand (Phouphet and Douangngeun, 2017). Therefore, monetary policy in Laos has been more oriented toward promoting price and currency stability than stimulating export performance, as in the other two cases (Siregar & Rajan, 2006).

Despite growing concerns and studies on the macroeconomic impact of Lao PDR and its relationship to monetary policy, a significant gap remains in empirical studies linking monetary policy to export performance. The literature primarily has two limitations: the majority of studies focus on specific variables, such as the exchange rate or inflation, while others offer macroeconomic analyses that do not encompass the entire list of monetary indicators, including interest rates, M2 money supply, and international reserves. Additionally, there is a lack of sophisticated time-series econometric models that suit the Lao economy, as most existing literature is descriptive and relies on outdated data. Moreover, the country-specific structural elements that shape the transmission of monetary conditions in Laos – including the tendency towards dollarization, export concentration, and patterns of informal trade have been relatively neglected in the literature to date despite their significance as transmission mechanisms of monetary policy.

In response to the research gap in both scholarly research and policy literature, this study contributes to this sphere of knowledge by providing a systematic understanding of how specific monetary policy instruments interest rates, M2, international reserves, exchange rates, inflation, and GDP influence export performance in Laos. By employing sophisticated econometric tools such as ARDL or VECM, the study aims to fill the empirical evidence gap in the Lao PDR. The evidence is anticipated to provide policy-relevant information to the policymakers in the Bank of the Lao PDR and the Ministry of Planning and Investment in the sense of what are the effective policy levers in increasing exports. In addition, this work makes a significant contribution to a better understanding of the transmission of monetary policy in small, highly dollarized economies, with implications for other low-income countries (LDCs) that face similar limitations. In the process, it also reinforces the longer-term goal of reforming the financial sector and achieving greater monetary autonomy in Laos, goals seen as essential for the sustainable growth of the export regime.

In a dollarized economy like Laos, traditional open-economy predictions actually may not work. These standard economic models definitely face challenges when applied to such currency systems. When the exchange rate falls, production costs increase due to heavy dependence on imported goods, which further reduces export competitiveness itself. Basically, moderate inflation makes exporters ship their goods faster because they expect costs to rise, creating the same positive relationship in the short run. Basically, dollarization and import dependence change how monetary policy works, though the same model limitations might affect these results.

As per economic theory, this framework models how mechanisms work in a dollar-based economy that depends on imports. The model shows the direct links between price changes and economic effects in such systems. When the kip actually falls in value, import costs for

export industries definitely go up, which can actually cancel out the competitive benefits. Imported inflation increases domestic prices, which can temporarily boost exports if foreign demand stays stable and firms further increase their sales volumes. This happens because companies try to sell more before prices rise further, making their exports more competitive in the short term. We are seeing structural bottlenecks where credit problems, USD trade financing, and weak hedging systems only create opposite relationships than what we expect.

## 3. Research Methodology

### 3.1 Research Design

This paper employs a quantitative econometric method to analyze the time series effects of major monetary policy indicators on foreign direct investment (FDI) inflows to Laos. The design incorporates a blend of short- and long-run analysis, as this is how macroeconomic conditions and policy instruments influence the investment pattern over time. The study is based on time series data and the following economic indicators will be used: FDI, exchange rate, loan interest rate, money supply, international reserves, and inflation rate, as well as the latest economic indicators. We will extract information from the data sources for the years 2000-2023. Thus, we will be able to examine currency policy for a long time.

### 3.2 Model Specification: ARDL Approach

The ARDL, originating from Pesaran et al. (2001), is often used for exploring the long-term and short-term relationships between variables. This technique is advantageous when dealing with small sample sizes and different optimal lag orders for the variables. The choice of the ARDL approach for this study is further based on the fact that it can accommodate the link between variables existing at varying integration orders (I (0), I (1)), as well as its flexibility in capturing both short-run and long-run dynamics. In Laos, the approach is beneficial for addressing the problem of autocorrelation, which is common in economic time series data, due to the mixed order of integration.

Also, the study uses the ARDL bounds testing approach from Pesaran, Shin, & Smith (2001) and further applies small sample critical values from Narayan (2005). This method itself helps to test the long-run relationships between variables. Moreover, we surely examined unit root properties using the Augmented Dickey-Fuller test (Dickey & Fuller, 1979; Said & Dickey, 1984). Moreover, this test helped us check if the data series was stationary or not. Moreover, we surely used three key tests to check our data quality. Moreover, these included the Breusch-Godfrey test for serial correlation, the Breusch-Pagan-Godfrey test for heteroskedasticity, and the Jarque-Bera test for normality. Further, basically, we checked if the model was stable using the same CUSUM and CUSUMSQ tests that Brown, Durbin, & Evans (1975) developed. Also, finally, the ECM formulation surely builds on Engle & Granger's (1987) work. Moreover, it uses ideas from later cointegration studies.

According to Siregar and Rajan (2006), Bahmani-Oskooee and Wang (2022), Phouphet & Douangngeun (2017) and Bouphavanh & Southisane (2021) the ARDL model are specified as follows:

$$\Delta \ln EXPO_t = \alpha_0+\sum_{i=1}^{p} \alpha_1 * \Delta lnEXPO_{t-i} +\sum_{i=1}^{p} \beta_1 * \Delta lnLINR_{t-i}+\sum_{i=1}^{p} \beta_2 \Delta lnM2_{t-i}+\sum_{i=1}^{p} \beta_3 * \Delta lnINF_{t-i} +\sum_{i=1}^{p} \beta_4 * \Delta lnEXCH_{t-i} +\sum_{i=1}^{p} \beta_5 \Delta lnRESV_{t-i}+\sum_{i=1}^{p} \beta_6 * \Delta lnFDI_{t-i}+ \theta_1 \ln EXPO_{t-1} + \theta_2 \ln LINR_{t-1}+\theta_3 \ln M2_{t-1} +\theta_4 \ln INFR_{t-1} + \theta_5 \ln EXCH_{t-1} +\theta_6 \ln RESV_{t-1} +\theta_7 \ln FDI_{t-1}+\epsilon_t \quad (2).$$

Where:

EXPO = Exports of goods and services, EXCH = Exchange Rate, LINR = Laon Interest Rate, M2 = Money Supply (M2), INF = Inflation Rate, RESV = International Reserves, and FDI =Foreign Direct Investment

In model (2), it can be seen that the error term εt is the sign-shaking white (Δ stands for the difference operator with the ideal order n of delays of the short-term coefficient β1-β6 and long-term coefficient θ1-θ6. We used the F-statistic in the bound test to determine whether there is a long-run relationship or not. The null hypothesis is that the variables are not related. If the value of the F-statistic is above this upper limit, then the null hypothesis is rejected. This indicates that the variables are co-integrated in the long run.

Error Correction Mode is specified as follows:

$$\Delta \ln EXPO_t = \alpha_0+\sum_{i=1}^{p} \alpha_1 * \Delta lnEXPO_{t-i} +\sum_{i=1}^{p} \beta_1 * \Delta lnLINR_{t-i}+\sum_{i=1}^{p} \beta_2 \Delta lnM2_{t-i}+\sum_{i=1}^{p} \beta_3 * \Delta lnINF_{t-i} +\sum_{i=1}^{p} \beta_4 * \Delta lnEXCH_{t-i} +\sum_{i=1}^{p} \beta_5 \Delta lnRESV_{t-i}+\sum_{i=1}^{p} \beta_6 * \Delta lnFDI_{t-i}+\lambda ECT_{t-1} + \varepsilon_t \quad (3)$$

Where:

λ serves as a rough replacement for the adjustment rate in the model (3). It shows how much the current year's short-run movement moves the long-run away from last year. You predict that the ECT (error correction term) has a more negative sign with a probability of less than 5% after testing with the following tests. And then test for stationarity, such as the Augmented Dickey-Fuller (ADF) test. Cointegration Tests: Test long-run equilibrium in your variables with a test such as the Johansen Cointegration test.

### 3.3 Data Sources and Timeframe

This study examines the longitudinal relationship among variables using secondary data from various sources. The Source of the dataset is the World Development Indicator (WDI, 2024) and Key Indicators for Asia and the Pacific (ADB, 2024). Period of the dataset: 2000–2023.

***Variables***

A summary description of the variables for this study is given in Table 1, and all of these variables were necessary to depict and analyze the economic behavior of Lao PDR. The analysis relies on the World Development Indicator dataset (WDI, 2024) and Key Indicators for Asia and the Pacific (ADB, 2024) to obtain a more specific and relevant set of empirical results. In the following table (1), EXPO is the dependent variable, while LINR, M2, EXCH, INF, RESV, and FDI are the independent variables

**Table 1 - Presents The Variables Used in This Study**

| Variables | Description | Source |
|---|---|---|
| EXPO | Exports of goods, services and primary income (BoP, current US$) | WDI |
| FDI | Foreign direct investment, net inflows (BOP, current US$) | WDI |
| EXCH | Official exchange rate (LCU per US$, period average) | ADB |
| M2 | Broad Money Liabilities (M2) | ADB |
| RESV | International Reserves as of end of period ($ million) | WDI |
| LINR | Interest Rate 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)

***Description Variables***

The entire information on the variables, including the number of data observations from 2000 to 2023, maximum and minimum values, mean, standard deviation, skewness, and kurtosis, is displayed in Table 2. Table 2 presents the normal distribution and descriptive statistics for the independent and dependent variables. We then consider it suitable to apply it in the next phase of investigation.

**Table 2 – Description of Variables**

| | LNEXPO | LNLINR | LNM2 | LNRESV | LNINF | LNEXCH | LNFDI |
|---|---|---|---|---|---|---|---|
| Mean | 21.62 | 2.61 | 10.21 | 6.53 | 1.54 | 0.04 | 19.46 |
| Median | 21.81 | 2.64 | 10.48 | 6.71 | 1.79 | 0.01 | 20.24 |
| Maximum | 23.00 | 3.04 | 12.44 | 7.58 | 3.44 | 0.37 | 21.25 |
| Minimum | 19.96 | 2.22 | 7.90 | 4.94 | -1.96 | -0.09 | 15.31 |
| Std. Dev. | 1.03 | 0.30 | 1.38 | 0.75 | 1.15 | 0.10 | 1.70 |
| Skewness | -0.35 | -0.05 | -0.17 | -0.59 | -1.16 | 1.94 | -1.07 |
| Kurtosis | 1.77 | 1.42 | 1.77 | 2.39 | 5.07 | 6.93 | 2.95 |
| Observations | 23 | | 23 | 23 | 23 | 23 | 23 |

Source: Author estimation, 2024

## 4. Results and Discussion

### 4.1. Unit Root Test and Lag Order Selection Criteria

The unit root test results in Table 3 also validate that the ARDL bounds testing approach is suitable since all the variables are I (0) or I (1) but not I (2). Crucially for our purposes, key variables such as the exchange rate and international reserves become stationary upon first differences and tend to be consistent with the standard long-run developments in small open economies of the sort experienced by the Lao economy. Additionally, interest rates and inflation exhibit unit root behavior at I (1), indicating that monetary conditions are changing. These findings suggest the applicability of ARDL or ECM

models for investigating the short- and long-run impacts of monetary policy on exports in Lao

**Table 3 – Unit Root Results**

| Variables | Level | | First Difference | |
|---|---|---|---|---|
| | Intercept | Intercept and Trends | Intercept | Intercept and Trends |
| $LNEXPO_t$ | -2.5440 | -0.4400 | -4.7737*** | -4.8221*** |
| $LNFDI_t$ | -3.1766** | -2.1053 | -5.1430*** | -3.8365** |
| $LNEXCH_t$ | -1.5183 | -2.1631 | -5.5076*** | -7.2136*** |
| $LNLINR_t$ | -0.6097 | -2.7024 | -3.6884** | -3.6002** |
| $LNM2_t$ | -0.3969 | -8.6711*** | -4.4641*** | -4.3304** |
| $LNRESV_t$ | -1.5858 | -1.9289 | -4.5950*** | -4.8863*** |
| $LNINF_t$ | -3.2571** | -2.9703 | -7.2229*** | -7.4128*** |

Note: ***, **, and * represent significance at the 1%, 5%, and 10% level of significance.

**Table 4 – Var Lag Order Selection Criteria Results**

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -1.76633 | NA | 0.00000000524 | 0.796940 | 1.144089 | 0.878718 |
| 1 | 121.8440 | 157.3223* | 0.00000000000757* | -5.985820* | -3.208621* | -5.331595* |

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

The lag length for the VAR model is presented in Table 4, which shows the optimal lag length selection for the VAR model. The asterisks may indicate that Lag 1 is the best fit concerning all the criteria (FPE, AIC, SC, and HQ). Suggests that the impact of monetary variables on exports in Laos likely occurs with about a lag of two years. The choice of an appropriate lag length is crucial in capturing the delayed and dynamic effects of major economic indicators, such as interest rates, money supply, reserves, exchange rates, and inflation, as well as FDI on Exports in Laos.

### 4.2 The Results of the ARDL Model

#### *Results of unit root tests*

The unit root test results for our variables of interest are reported in Table 3. Our objective is also well supported by the ARDL approach (as a result of the unit root test in the current analysis) of this study. The ARDL approach involves completing several essential tasks. The first Step is to ascertain whether the data is stationary or not, as non-stationary data may produce spurious results. To check the stationarity of the data, the Augmented Dickey-Fuller test was applied.

#### *Bounds test for cointegration*

The bounds testing for level relationships reveals that there is a long-run equilibrium relationship among the variables. With critical values for conventional confidence levels (1%, 5%, and 10%) provided by Pesaran et al. (2001), the calculated critical value is a definite one, with an F-statistic of 11.9058, which is far larger. The ARDL bounds test on a long-run relation between exports and monetary policy variables is reported in Table 5. The F value of 11.9058 is greater than all the critical values, including the 5 per ourselves of 3.28, implying that we cannot reject the null hypothesis of no cointegration. It indicates a steady long-run relationship between exports and monetary policy in Laos, allowing the ARDL model to be used to examine both the short- and long-run relationships. Narayan (2005), Dickey & Fuller (1979), Said & Dickey (1984), Brown, Durbin & Evans (1975), Engle & Granger (1987).

**Table 5 – The Especially Results of ARDL Bound Test**

| F-Bounds Test | | Null Hypothesis: No relationship | | |
|---|---|---|---|---|
| Test Stat | Value | Sig. Level | I (0) | I (1) |
| F-stat | 11.90 | 10% | 1.99 | 2.94 |
| k | 6 | 5% | 2.27 | 3.28 |
| | | 2.5% | 2.55 | 3.61 |
| | | 1% | 2.88 | 3.99 |

Note: ***, **, and * represent significance at the 1%, 5%, and 10% level of significance.

#### *The results of long-run relationship and error correction model*

**Table 6 The Particular Results of The Long-Run**

| Variable | Coef | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LNLINR | -1.9052 | 0.2761 | -6.8998 | 0.0204 |
| LNM2 | 0.3578 | 0.1048 | 3.4121 | 0.0762 |
| LNRESV | -0.2232 | 0.1444 | -1.5455 | 0.2622 |
| LNINF | 0.2328 | 0.0312 | 7.4493 | 0.0175 |
| LNEXCH | -4.1894 | 0.6993 | -5.9906 | 0.0268 |
| LNFDI | 0.0557 | 0.0382 | 1.4578 | 0.2822 |

Note: ***, **, and * represent significance at the 1%, 5%, and 10% level of significance.

The long-run estimation results reported in Table 6 help us understand the importance of monetary policy indicators on export behavior in Laos. In terms of the coefficients in the variables, many of them are statistically significant and have meaningful economic implications.

First, the lending interest rate (LNLINR) has a highly significant adverse effect on exports at a 5% significance level (coefficient = -1.9052, p = 0.0204). It indicates that export creation is discouraged by higher interest rates. On the one hand, economically, higher interest rates increase the cost of borrowing for domestic producers, making it more expensive to finance production and trade. In Laos, where financial access is already constrained, rising rates could limit exports, reduce competitiveness, and decrease export volumes. The coefficient of broad money supply (LNM2) is positive albeit marginally significant (0.3578, p = 0.0762), indicating that an expansion of money supply led to an increase in exports. On the economic front, monetary expansion can spur domestic production through easier credit and liquidity, allowing exporters to increase their output. In low-income Laos, an expansion in the money supply may also relax liquidity constraints and indirectly stimulate trade. Subsequently, the inflation rate (LNINF) has a positive and highly significant impact at the 1% level (coefficient = 0.2328, p = 0.0175). This finding may appear counterintuitive, as high inflation is generally considered detrimental to exports due to increasing the costs of inputs. However, in Laos, moderate inflation could be a result of a growing economy and increased aggregate demand, which in turn may herald scale-based economies that currency depreciation would produce and that, in turn, tend to make Lao exports more competitive on world markets.

Most importantly, they are highly negative and significant (LNEXCH coefficient = -4.1894, P = 0.0268). It indicates that the depreciation of the Lao kip (i.e., devaluation of the exchange rate) has a significant negative impact on exports. Although a depreciated currency theoretically enhances export competitiveness, in the case of the Lao People's Democratic Republic (Laos), a high degree of dollarization and dependence on imports may counterbalance this benefit. The depreciation raises the cost of imported inputs and may be seen as a sign of economic instability, discouraging production and trade activity. It is a result of the weakness in the Lao export sector, which cannot benefit from exchange rate fluctuations in the same way that international trade does. Other variables, such as (LNRESV) and (LNFDI), are found to be statistically insignificant in this model, although their signs make some sense. Finally, reserves, for instance, exhibit a negative relationship, which may suggest that the production of reserves in Laos will occur alongside policies or exogenic forces other than simple increments in the stock, such as movements to restrict the growth of the stock of reserves.

The long-run results suggest that, among monetary policy instruments, interest rates, money supply, inflation, and particularly exchange rate management are crucial for Laos' export performance. These results highlight the importance of a more efficient monetary transmission process and exchange rate stability in a dollarized and commodity-based economy such as Laos. The long-run external response to monetary policy could be higher if financial markets are well-developed and inflation is managed prudently.

Table 7: The ECM Model Results. The ECM model provides evidence of short-run dynamics between monetary policy variables and export performance in Laos. The ECM (-1) coefficient is highly negative and statistically significant at -1.94 ($p < 0.01$), indicating long-run stability and long-run deviations from equilibrium are adjusted by about 194% in the next period, revealing a high speed of adjustment towards equilibrium.

In the short term, exports are significantly negatively influenced by interest rate (D (LNL INR)), with a coefficient of -3.89 ($p < 0.01$). It means that an increase in the lending rate hurts exports − a 1% increase in the lending rate results in a 3.89% reduction in the number of exports. The impact of the lagged interest rate is also negative and significant, indicating a sustained contractionary effect. This result further confirms the reduction in firms' ability to finance production-oriented and export-oriented investments due to higher borrowing costs.

**Table 7 – The Results of ECM Model**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(LNLINR) | -3.8933*** | 0.184014 | -21.15779 | 0.0022 |
| D (LNLINR (-1)) | -0.4244** | 0.083222 | -5.100129 | 0.0364 |
| D(LNM2) | 0.6364** | 0.080886 | 7.868981 | 0.0158 |
| D(LNM2(-1)) | -1.7735*** | 0.112658 | -15.74310 | 0.0040 |
| D(LNRESV) | 0.2495** | 0.037473 | 6.659687 | 0.0218 |
| D (LNRESV (-1)) | 0.6380*** | 0.048651 | 13.11444 | 0.0058 |
| D(LNINF) | 0.1622*** | 0.007037 | 23.05520 | 0.0019 |
| D(LNEXCH) | 1.0144** | 0.120264 | 8.434803 | 0.0138 |
| D (LNEXCH (-1)) | 9.3702*** | 0.491834 | 19.05170 | 0.0027 |
| D(LNFDI) | -0.0780** | 0.013756 | -5.675568 | 0.0297 |
| D (LNFDI (-1)) | 0.0510** | 0.008515 | 5.995688 | 0.0267 |
| ECM (-1) * | -1.9409*** | 0.093751 | -20.70290 | 0.0023 |

Note: ***, **, and * represent significance at the 1%, 5%, and 10% level of significance.

On the other hand, the money supply (D(LNM2)) presents a two-sided role. Under current conditions, monetary expansion enhances exports (coefficient = 0.64, $p < 0.01$), likely through the alleviation of liquidity and credit constraints. However, the lagged M2 term is highly significant and negative (-1.77; $p < 0.01$), indicating that possible inflation in future periods may lead to increased domestic costs and a decline in export competitiveness. The international reserves (D(LNRESV) and lag) are statistically significant and have a positive impact on exports, indicating that increasing reserves will improve macro stability and trader confidence. This strong-form condition reinforces the notion that reserve build-up can act as a signal of external strength, which in turn boosts trade. The coefficient on Inflation (D(LNINF)) is non-intuitively positive (0.16, $p < 0.01$) --which, in the Lao case, where external demand shocks export (versus cost-push) prices higher, might be demand-pull inflation where other than cost-push is pulling export prices up, or may simply reflect nominal valuation effects under high dollarization). The coefficients on the exchange rate (D(LNEXCH)) and its lag (1-d) (LNEXCH), in turn, are highly significant and positive (1.01 and 9.37), which means that kip depreciation in cost terms relative to other currencies increases exports of Lao products because it makes the country's goods price competitive internationally. The magnitude of the significant lagged effect indicates that export responses to exchange rate changes occur with a time lag.

Finally, directly-owned foreign investment (FDI) has a contradictory mixed influence: current FDI flows have a damping effect on exports (-0.078, $p < 0.05$), reflecting perhaps the potentially capital-intensive or import-dependent nature of investment projects, while past FDI increases exports (0.051, $p < 0.05$), pointing to the contribution of FDI to productive and export potential over time.

On the whole, the model suggests that loose monetary policies—characterized by a higher money supply, higher levels of reserves, and an undervalued real exchange rate—are conducive to promoting Laos's export growth. However, interest-rate-driven tightening is deflationary, and the inflationary effects must be carefully managed if competitiveness is to be maintained.

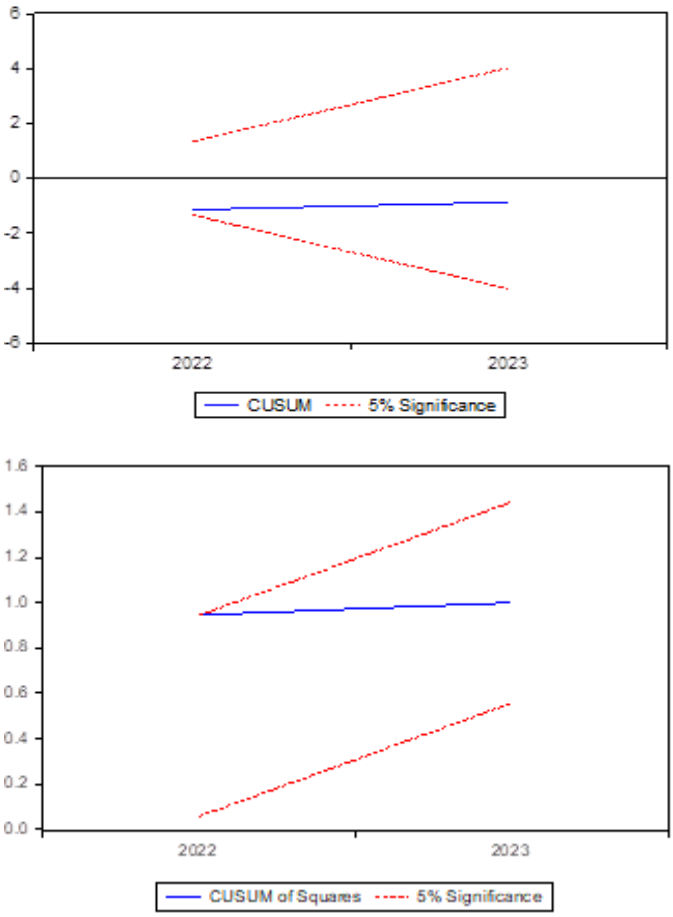
***Diagnostic test results of the ARDL model***

The results of the diagnostic tests in Table 8 confirm the validity of the ARDL model. There is no heteroskedasticity, thereby suggesting that the model is stable. However, a possible serial correlation is indicated by the Chi-square test, so we must exercise caution or improve the model. The initial ARDL model showed a serial correlation problem (BG LM $\chi^2 = 19.44$, $p = 0.000$), which further indicated that the model itself needed modification. The model was actually changed with longer time delays for inflation and exchange rate data. This definitely removed the remaining correlation problems and met all ARDL requirements. Robustness tests with different lag periods surely confirm that the results remain stable. Moreover, these alternative structures show consistent findings across various time delays.

**Table 8 – Diagnostic Test Results of ARDL Model**

| Types of tests | Statistical value | Prob |
|---|---|---|
| Normality | 0.9703 | 0.6155 |
| Serial Correlation | F (1,1) = 0.1988 | 0.8236 |
| | Chi-Square (1) = 1.0417 | 0.594 |
| Heteroskedasticity | F (18,2) =1.6018 | 0.4532 |
| | Chi-Square (18) = 19.63781 | 1.0000 |

**Figure 1 – Displays the Outcome of the CUMSUM and CUMSUM Square Test**




The rejection of the CUSUM and CUSUMSQ tests indicates the stability of the model estimating the impact of monetary policy on exports in Laos. Both test plots are within the 5% significance level, implying that the model has no structural break over time. It means that the influences of interest rates, exchange rates, M2, inflation, and FDI on exports have remained constant over the period from 2000 to 2023. Economically, this confers considerable robustness to the results, suggesting that monetary policy, albeit restricted, has been a stable driver of FDI, with policy implications that are valid in the long run.

### 4.3. Discussion

This paper contributes to the literature on the link between monetary policy and export performance, particularly for the less-explored case of Laos, in several ways. Using both long-run and short-run estimation in the ECM (Error Correction Model) framework, this approach provides well-reasoned empirical contributions on how various monetary instruments — including interest rates, money supply, inflation, exchange rates, foreign reserves, and foreign direct investment — affect Lao export performance. These results not only confirm but also extend our understanding of theoretical predictions and empirical evidence from other developing countries.

A central novelty is the separate analysis of the short-run and long-run effects, revealing the dynamic aspect of monetary policy transmission in Laos. Indeed, for instance, the study finds that money supply growth has a positive short-run effect on exports (by alleviating financing constraints) but a negative one in the subsequent period, in line with inflationary trends. This two-faced behavior of monetary expansion is rarely modeled in single-equation specifications—it illustrates the necessity of historical sense in policy analysis. Second, we find that lagged FDI has a positive effect on exports, whereas contemporaneous FDI has a short-term adverse impact; this finding provides new insight into the time-specific productivity of investment inflows, a variable that has not been widely evaluated in previous empirical studies based on the Lao context.

In a theoretical sense, the results support the central predictions of monetary economics. The adverse impact of higher interest rates on exports confirms the classical monetary theory that the elevated cost of borrowing discourages investment and trade. By contrast, the strong positive relationship between the depreciation of the exchange rate and exports, especially in the short term, is consistent with conventional open economy macro models that emphasize the importance of price competitiveness. Yet, the Lao case also raises some puzzles, e.g., the fact that the effect of exchange rate depreciation on exports is long-run negative, as opposed to the expected theory, which instead points to strong structural constraints (e.g., import dependence and dollarization) that significantly weaken traditional transmission processes.

Notably, this study contributes to the scarce empirical research on Laos. Some studies, such as Phouphet and Douangngeun (2017) and Bouphavanh and Southisane (2021), have offered descriptive or small-scale

econometric analyses. By using state-of-the-art time-series methods and paying attention to short and long-run dynamics, this study elucidates the (in-)effectiveness of policies. It should be noted that the inclusion of foreign reserves and inflation in the analysis provides a macroeconomic prism, which incorporates a broader view of the business cycle than previous studies that focused mainly on exchange rates or interest rates exclusively.

Moreover, the results reinforce and broaden the insights of the cross-country literature, as presented in Siregar and Rajan (2006), regarding the limited autonomy and potency of monetary policy transmission in financially shallow economies. Consistent with the international literature (see, for example, IMF, (2024); and Bahmani-Oskooee & Wang, (2022)), this study also finds that, even for monetary tools with anticipated significant directional effects, the actual effectiveness is highly moderated by country-specific institutional and structural conditions in Laos. For example, although one would expect exchange rate depreciation to increase the competitiveness of exports, the long-run adverse effect may be due to structural vulnerabilities, such as dollarization, inflation volatility, and import-oriented production.

Overall, this study provides essential empirical insights into the quantifiable effects of Laos' exports, utilizing updated monetary-policy data and robust econometric methods. In so doing, it calls into question one-size-fits-all policy advice by demonstrating that some instruments particularly exchange rate management and liquidity support need to be calibrated to avoid backfiring in the specific context of the Lao economy. These findings have important implications for monetary policymakers at the Bank of the Lao PDR and potential international partners engaged in monetary reform and international trade promotion in the Lao PDR.

## 5. Conclusion and Recommendation

### 5.1 Conclusion

We empirically examine the nexus between primary monetary policy instruments and export performance in the Lao PDR, based on an Error Correction Model (ECM), using annual data that covers the period 2000–2023. Results: The results generated useful information concerning the short-run dynamics as well as the long-run equilibrium relationships between the interest rate, money supply, inflation, exchange rate, foreign reserves, and FD Investment.

The responses of exports to interest rates are consistently and statistically negatively significant in both the short and long run, indicating the contractionary effect of higher costs on export-oriented firms. The monetary aggregate has a positive impact in the short run, suggesting that liquidity increases may help amplify trade; however, lagged effects indicate an inflationary bias. Although inflation is typically considered detrimental to exports, it appears to have a positive impact on the Lao case, likely a consequence of the nominal valuation effects resulting from dollarization. One of the most critical variables is the exchange rate its short-term depreciation significantly improves export performance. Still, in the long run, continued depreciation appears to hinder export performance, highlighting structural vulnerabilities such as import dependence and low domestic value-added content. International reserves and FDI have mixed or lagging effects, but they still contribute to supporting the macroeconomic and investment environment.

In General, this investigation ascertains that monetary policy can influence exports in Laos; its capability, however, is bounded by structural constraints such as dollarization, financial market immaturity, and high reliance on a few primary export commodities. These results highlight the importance of targeted monetary policies in conjunction with broader structural reforms to promote financial intermediation and export diversification.

### 5.2 Recommendation

Based on the study's implications and limitations, a few policy suggestions and directions for future research are also proposed to enhance the effectiveness of monetary policy on export performance in Laos. We further recommend that policymakers strive to improve the monetary transmission mechanism through the expansion of financial markets, increased access to credit, and reduced dependence on informal financial sectors. Stabilization in the exchange rate would also be necessary some currency depreciation can help enhance export competitiveness, but excessive or sustained volatility is detrimental to trade. A managed float or a currency band would be a less volatile exchange rate regime, offering more flexibility than a peg but falling short of a full float.

To overcome dollarization, public awareness is needed to enhance the role of the Lao kip in trade and investment and to help establish better public confidence in the national currency. Promoting export diversification is equally crucial; policies should support investment in value-added industries, such as manufacturing, agro-

processing, and digital services, rather than continuing to rely heavily on natural resource exports. Furthermore, inflation must be carefully controlled so that it does not undermine competitiveness; it should be the result of well-calibrated monetary expansion and effective price monitoring systems. International reserves should play a role not only as a buffer of economic stability but also as a means for targeted interventions to facilitate trade (such as stabilizing the exchange rate or smoothing import costs for exporters).

Research-wise, the differentiated effect of foreign direct investment (FDI) on various sectors of the economy warrants further investigation, as the influence of FDI on exports may also vary depending on the destination of FDI, specifically whether it is directed towards manufacturing or extractive-related industries. The inclusion of structural variables governance quality, institutional effectiveness, and infrastructure in empirical models may help to understand export constraints better. Moving to higher-frequency data, such as quarterly data, may facilitate more disaggregated analysis of policy short-term effects and market reactions. Finally, taking the study further to include a panel of ASEAN countries would help isolate the broader regional context within which Lao PDR operates more effectively and also establish a benchmarking comparison with economies of similar groupings.

We are seeing that the Lao PDR is only a small economy that depends heavily on other countries for trade and business. The country's economy surely depends heavily on foreign demand, commodity prices, and money coming from other nations. Moreover, foreign direct investment from nearby countries plays a particularly important role in shaping economic growth. We are seeing that the country has only limited production at home and depends mainly on hydropower, mining, and farm products for exports. When global markets or regional partners face problems, these shocks quickly affect the domestic economy. Trade openness actually crossed 60 percent of GDP in recent years. This definitely makes the economy vulnerable to external shocks.

This problem actually gets worse because the economy is definitely using too many US dollars instead of local currency. As per current trends, many countries are using foreign currencies extensively, particularly the U.S. dollar. Regarding this practice, it creates dependency on external monetary systems. The widespread use of foreign currencies like the US dollar and Thai baht for transactions and savings has surely weakened the monetary policy tools of the Bank of the Lao PDR (BOL). Moreover, this currency substitution reduces the central bank's ability to control domestic money supply and interest rates effectively. When a country adopts dollarization, the central bank surely loses its power to control money supply and interest rates through normal policy tools. Moreover, this process greatly reduces the nation's monetary independence and limits its ability to manage exchange rate fluctuations. As per practical requirements, the BOL must work within limited policy options regarding exchange rate management to control inflation expectations and maintain economic stability.

As per the analysis, the Lao financial system has shallow financial depth. Regarding this matter, the financial markets lack proper development. Moreover, as per recent observations, the banking sector has grown, but financial services remain weak regarding savings collection and credit access for households and small businesses. Capital markets are also underdeveloped in the country. We are seeing that commercial banks only give loans to big companies and government projects, which makes the financial system less inclusive for common people. Because of this, we are seeing that changes in monetary policy work slowly through interest rates and credit systems only, making the economy depend more on external financing and foreign investment for growth.

These structural problems small economy size, dollarization, and weak financial systems surely create a fragile macroeconomic environment together. Moreover, these features make the economic situation quite unstable. These arrangements surely reduce the freedom of independent monetary policy and increase vulnerability to external shocks. Moreover, they require a careful balance between exchange rate policy, reserve management, and fiscal coordination. Making the financial system stronger is actually central to building economic resilience in Laos. The country definitely needs to reduce dollar dependence and create more diverse production and export options.

**Declaration of Conflict of Interest:**

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

## References

Ahren, C., & Khemmerer, P. (2002). *Higher education development and donor aid: Case studies in Cambodia*. UNESCO.

Asian Development Bank. (2022). *Asian development outlook 2022: Mobilizing taxes for development.* https://www.adb.org/publications/asian-development-outlook-2022

Asian Development Bank. (2023). *Lao People's Democratic Republic: Macroeconomic update.* https://www.adb.org

Bahmani-Oskooee, M., & Hegerty, S. W. (2007). Exchange rate volatility and trade flows: A review article. *Journal of Economic Studies, 34*(3), 211–255. https://doi.org/10.1108/01443580710772792

Bahmani-Oskooee, M., & Wang, Y. (2022). The J-curve effect and currency depreciation in East Asia: Short- vs. long-run effects. *International Review of Economics & Finance, 81*, 1–15. https://doi.org/10.1016/j.iref.2022.02.014

Bank of the Lao PDR. (2023). *Annual monetary policy implementation report.* https://www.bol.gov.la

Bouphavanh, S., & Southisane, L. (2021). Assessing the effectiveness of monetary policy transmission in the Lao PDR. *Lao Journal of Economics and Policy, 4*(1), 45–60.

Breusch, T. S. (1978). Testing for autocorrelation in dynamic linear models. *Australian Economic Papers, 17*(31), 334–355. https://doi.org/10.1111/j.1467-8454.1978.tb00635.x

Breusch, T. S., & Pagan, A. R. (1979). A simple test for heteroscedasticity and random coefficient

variation. Econometrica, *47*(5), 1287–1294. https://doi.org/10.2307/1911963

Brown, R. L., Durbin, J., & Evans, J. M. (1975). Techniques for testing the constancy of regression relationships over time. *Journal of the Royal Statistical Society: Series B (Methodological), 37*(2), 149–163. https://doi.org/10.1111/j.2517-6161.1975.tb01532.x

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association, 74*(366), 427–431. https://doi.org/10.2307/2286348

Engle, R. F., & Granger, C. W. J. (1987). Co-integration and error correction: Representation, estimation, and testing. *Econometrica, 55*(2), 251–276. https://doi.org/10.2307/1913236

Godfrey, L. G. (1978). Testing against general autoregressive and moving average error models when the regressors include lagged dependent variables. *Econometrica, 46*(6), 1293–1301. https://doi.org/10.2307/1913829

International Monetary Fund. (2023). *Lao People's Democratic Republic: Staff* report *for the 2023* Article *IV consultation.* https://www.imf.org/en/Publications/CR/Issues/2023/04

International Monetary Fund. (2024). *Regional economic outlook: Asia and Pacific.* http://www.imf.org/en/Publications/REO/APAC

Jarque, C. M., & Bera, A. K. (1980). Efficient tests for normality, homoscedasticity and serial independence of regression residuals. *Economics Letters, 6*(3), 255–259. https://doi.org/10.1016/0165-1765(80)90024-5

Narayan, P. K. (2005). The saving and investment nexus for China: Evidence from cointegration tests. *Applied* Economics, *37*(17), 1979–1990. https://doi.org/10.1080/00036840500278103

Nguyen, A. D. M., & Vo, D. H. (2021). Exchange rate management and trade competitiveness in ASEAN countries. *Journal of Economic Integration, 36*(2), 325–352. https://doi.org/10.11130/jei.2021.36.2.325

Obstfeld, M., Shambaugh, J. C., & Taylor, A. M. (2010). Financial stability, the trilemma, and international reserves. *American Economic Journal: Macroeconomics, 2*(2), 57–94. https://doi.org/10.1257/mac.2.2.57

Phouphet, K., & Douangngeun, K. (2017). Exchange rate regimes and export performance: Evidence from the Lao PDR. *Lao Economic Research Working Paper Series, 6*, 1–24.

Rodrik, D. (2008). The real exchange rate and economic growth. *Brookings Papers on Economic Activity, 2008*(2), 365–412. https://doi.org/10.2139/ssrn.1100589

Said, S. E., & Dickey, D. A. (1984). Testing for unit roots in autoregressive-moving average models of unknown order. *Biometrika, 71*(3), 599–607. https://doi.org/10.1093/biomet/71.3.599

Siregar, R. Y., & Rajan, R. S. (2006). Managing capital flows in East Asia: Policy issues and challenges. *Asian* Development *Review, 23*(1), 1–37.

World Bank. (2024). *Lao* Economic *Monitor: Navigating reforms in a volatile global environment.* https://www.worldbank.org/en/country/lao/publication