

# The Effect Of Lao Kip Depreciation On Net Migration In Lao PDR

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## Abstract

*This study examines the effect of the depreciation of the Lao kip on net migration in Lao PDR using an Autoregressive Distributed Lag (ARDL) model and 30 years of time series data from 1993 to 2023. The COVID-19 pandemic led to business closures, job losses, disruptions to tourism, and a decline in remittances in Lao PDR, resulting in a shortage of foreign currency and depreciation of the Kip against major currencies. As the Kip lost value, local wages became relatively cheaper compared to imported goods, potentially incentivizing emigration while discouraging immigration. The ARDL analysis reveals that the Kip depreciation has a significant negative impact on net migration in both the short and long run, suggesting increased emigration as earnings in Lao PDR decline relative to other countries. Inflation shows a minimal negative but insignificant effect, while higher GDP per capita is associated with increased net migration by retaining workers and attracting immigrants. The findings highlight the implications of currency fluctuations on labor mobility and the importance of maintaining economic stability to manage migration flows effectively.*

**Keywords:** Currency depreciation, Net migration, Covid-19, Lao PDR.

## 1. Introduction

The labor force plays a crucial role in the economic growth of Lao PDR. The presence and efficiency of laborers have a direct influence on production and earnings, which continue to drive economic diversification and promote industrialization. This is essential to attract foreign direct investment and develop manufacturing capabilities in sectors such as textiles, food processing, and other manufacturing industries. Additionally, Lao PDR's ambitious infrastructure development plans, including the construction of roads, bridges, and hydropower projects, heavily rely on a large and skilled labor force. The growth of the service sector, which includes tourism, hospitality, and financial services, also requires a well-trained and service-oriented workforce to enhance the country's competitiveness in the region.

Although the Lao economic development requires a sufficient and skilled labor force, a significant portion of the Lao labor force, who are not employed by limited local industries, migrates to other countries. Lao PDR's relatively young population compared to neighboring countries, several Lao youths move to work in neighboring countries, particularly Thailand, for employment opportunities. In 2017, the estimated number of net migration was -73 thousand people (IOM, 2023). The remittances sent back by these migrant workers contribute substantially to household incomes and the Lao economy. In 2021, the ratio of remittances to the Gross Domestic Products was 2.29 percent (DRI and IOM, 2022).

The COVID-19 pandemic posted business restrictions and health situations in many

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countries (MOICT, 2022), and many Lao migrant workers, particularly those employed in neighboring countries like Thailand, needed to return to Lao PDR. The number of return migrant especially from Thailand were recorded at approximately three hundred thousand, about fifteen percent of the total labor force in 2017. Although COVID-19 caused Lao migrants to return to the country, it later increased the number of Lao emigrants to other countries via the decline of Lao Kip value. First, the COVID-19 pandemic has dealt a severe blow to businesses in Lao PDR. Many businesses had to temporarily shut down or significantly reduce employment due to lockdowns and movement restrictions. Border closures, flight cancellations, and quarantine requirements significantly disrupted the tourism sector. The sector experienced widespread job losses and reduced incomes, while the country suffered a substantial loss of foreign currency earnings. Second, the return of Lao workers from abroad leads to a decline in remittance inflows, an important source of foreign currency. The combination of these factors created a shortage of foreign currency in the Lao economy, leading to a depreciation of the Lao kip against major currencies like the US dollar and the Thai baht.

As the value of the Lao Kip declined, many local job wages and benefits became cheaper compared to the prices of goods that are often imported from neighboring countries like Thailand. This situation further fueled inflationary pressures and led to an increase in the prices of other products in the country. Consequently, the lower purchasing power of Lao Kip earnings and the higher cost of living could potentially drive Lao workers to seek employment opportunities in other countries, while also discouraging workers from neighboring countries to move into Lao PDR.

Lao PDR recently experienced significant currency depreciation from 2022 to the present, leading to a scarcity of research focusing on this phenomenon's impact on net migration using advanced econometric methods. Therefore, this research aims to evaluate the effect of Lao Kip depreciation on net migration in Lao PDR. The econometric estimation method used is the Autoregressive Distributed Lag model, utilizing 30 years of time series data.

Following the introduction, the subsequent section will present the literature review. This will be followed by the methodology section, which will outline the econometric equation and the data utilized for this research. The paper will then proceed to present the findings in the results section, before concluding the research in the conclusion section.

### **Literature Review**

Net migration refers to the difference between the number of people entering a country (immigration) and those leaving (emigration) over a specific period. It is a key demographic indicator that reflects population movement dynamics. Several factors can influence net migration, both pushing and pulling forces. For instance, a strong economy with job opportunities attracts immigrants, while economic hardship in a country might lead to emigration (Dustmann et al., 2016). Political instability or conflict can act as a catalyst for people to emigrate, seeking safety and better opportunities elsewhere (Castles & Miller, 2003). Family reunification policies, cultural ties, and language can also influence migration patterns (Massey et al., 1993). Environmental factors such as climate change, natural disasters, and resource scarcity can force people to migrate (Black et al., 2011). Furthermore, government policies, such as immigration policies, visa regulations, and refugee resettlement programs, can have a significant impact on net migration (Skeldon, 2006). Economic growth and development have both positive and negative impacts on migration. A growing economy often creates job opportunities, which in turn attract skilled migrants (Borjas, 1994). These migrants contribute to innovation, fill labor shortages, and boost tax revenue (Dustmann et al., 2016).

An appreciation of the receiving country's currency is believed to raise the marginal benefit of engaging in the foreign labor market, leading to fewer migrants returning because of the increased relative value of foreign income (Gao, 2015). The literature

suggests that exchange rate fluctuations can significantly impact migration decisions and patterns. Ouyang and Paul (2018) estimated on Philippine migrants found that positive exchange rate shocks in host countries are negatively associated with migrants' return rate, indicating that favorable exchange rates can deter migrants from returning home. Gao (2015) found that a 10% depreciation of the Mexican peso increases apprehensions by 6-8%, while uncertainty in exchange rates also deter the highly skilled from entering the U.S. Then, Shin (2021) indicated that the purchasing-power-parity of currency values of migrants' home countries are positively correlated with more pro-migrant policies in host countries. Docquier & Rapoport (2010) found that a strong currency (appreciation) can make a country less attractive for low-skilled immigrants seeking work. Conversely, it might attract foreign investment, potentially creating jobs. Nevertheless, Fewer & Greenwood (2003) pointed out that a weak currency (devaluation) can make a country cheaper for foreign workers, potentially leading to higher net migration. However, it can also increase import costs, fueling inflation.

Higher inflation rates in a host country may lead to increased costs of living, impacting the attractiveness of migrating to that country. Conversely, lower inflation rates may make a country more appealing for migrants due to lower costs and a more stable economic environment (Anderson, 2023). Several studies have analyzed the relationship between inflation and net migration including Smith (2005), IMF (2020), Dustmann et al., (2006), and Garcia and Patel (2019). Their study revealed a significant negative correlation between inflation rates and net migration. Higher inflation rates were associated with a decrease in net migration, suggesting that inflation can act as a deterrent for individuals considering migration. While, Czaika et al., (2014), and Fry and Wilson (2024) analyzed the impact of inflation on net migration can be influenced by the underlying causes of inflation. If inflation is driven by supply-side factors, such as disruptions in the production or distribution of goods, it may have a different effect on net migration compared to inflation driven by demand-side factors, such as an overheating economy. Additionally, the relationship between inflation and net migration can be affected by the level of economic development and the availability of social safety nets in the country experiencing high inflation. In developed economies with robust social welfare systems, the impact of inflation on net migration may be less pronounced, as individuals may have access to government support and services that can mitigate the negative effects of rising prices.

## **Methodology**

To analyze the effect of Lao Kip depreciation on net migration in Lao PDR, time series data from 1993 to 2023 will be utilized. The specific model used in this study can be expressed as follows:

$$\text{netmigrat}_t = f(\text{excr}_t, \text{Inflation}_t, \text{GDP}_t)$$

where netmigrat is the number of migrations minus emigration, excr is exchange rate of Lao Kip to US dollar, and GDP is the Gross Domestic Products per capita. In time series analysis, it is essential assumption that the variable is stationary; thus the used variables are tested using the Augmented Dickey-Fuller test. The variables of net migration, exchange rate, inflation, and GDP per capita are potentially mixed between stationary at level I(0) and first difference I(1). Therefore, the model is potentially estimated by the Autoregressive Distributed Lag (ARDL) model, introduced by (Pesaran, M. H., Shin, 1999; and Pesaran, Shin, & Smith, 2001). This technique has several advantages over other techniques such as the Engle-Granger method (Engle & Granger, 1987) for two variables and the Johansen cointegration method, but all variables should be integrated of the same order i.e I(1) (Johansen, 1991; Johansen & Juselius, 1990). The ARDL technique can overcome these issues. First, it is appropriated for a small sample size (Pesaran, M. H., Shin, 1999). Second, it can be used whether variables are purely I(0), purely I(1), or a mixture in the form of both I(1) and I(0). Third, it captures appropriate lags in the Data Generating Process (DGP). Fourth, the error correction model (ECM) can be obtained

from the bound testing approach through a simple OLS transformation (Ahmad & Du,

2017). The Error Correction Model (ECM) shows the adjustment mechanism of the short-run into the long-run without loss of long-run information (Johansen & Juselius, 1990). Fifth, in the case of some endogenous regressors, the ARDL approach provides unbiased estimation for the long run (Narayan, 2007) and (Ahmad & Du, 2017). The ARDL model with cointegration among variables is to analyze the Unrestricted Error Correction Model (UECM). Therefore, the ARDL with the Error Correction Term (ECT) model can be written as:

$$\Delta \text{Ln}(\text{netmigrat})_t = \alpha + \text{ECT}_{t-1} (\text{Ln}(\text{netmigrat})_{t-1} + \theta_1 \text{Ln}(\text{excr})_{t-1} + \theta_2 \text{Inflation}_{t-1} + \theta_3 \text{Ln}(\text{GDP})_{t-1}) + \sum_{k=1}^n \beta_{1k} \Delta \text{Ln}(\text{netmigrat})_{t-k} + \sum_{k=1}^n \beta_{2k} \Delta \text{Ln}(\text{excr})_{t-k} + \sum_{k=1}^n \beta_{3k} \Delta \text{Inflation}_{t-k} + \sum_{k=1}^n \beta_{4k} \Delta \text{Ln}(\text{GDP})_{t-k} + \varepsilon_t$$

where the error correction term (ECT) is included to capture the speed of adjustment from the short-run equilibrium to the long-run equilibrium. The results will then undergo a bound test to solidify the effects in both the short run and the long run.

The definition of variables is presented in Table 1. The variable "netmigrat" represents the difference between the number of migrants and the number of emigrants, allowing for both positive and negative values. To apply logarithms to this variable, the maximum value of the variable is subtracted from itself, resulting in a positive value that mirrors the movements of the original variable. All variables are sourced from the World Bank database.

**Table 1.** Data

Variable	Definition	Measurement
Ln(netmigrat)	Net migration in positive	Logarithm of net migrationmax – Net migration
Ln(excr)	Exchange rate	Logarithm of Echange rate LAK/USD
Inflation	Inflation	Percentage
Ln(GDP)	Constant GDP per capita	Logarithm of GDP per capita in USD

**Note:** LAK is Lao Kip currency and USD is US dollar.

The data descriptive statistics for each variable are presented in Table 2. Over the 40-year period from 1984 to 2023, the average net migration was -17,861 people, with the lowest recorded net migration of -40,1074 occurring in 2004. The exchange rate had an average value of 5,860 LAK/USD from 1984 to 2022, reaching its lowest point at 35 LAK/USD in 1984 and its highest value at 14,035 LAK/USD in 2022. The inflation variable averaged 16.898 percent from 1989 to 2022, while GDP per capita averaged 1,303 USD from 1984 to 2023.

**Table 2.** Descriptive Statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
Ln(netmigrat)	40	9.820	0.823	6.717	10.621
Ln(excr)	39	7.942	1.665	3.555	9.549
Inflation	34	16.898	26.429	0.141	125.272

Ln(GDP)	39	7.036	0.527	6.312	7.863
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The multicollinearity test results in Table 3 indicate low correlation between the exchange rate and inflation, as well as between GDP and inflation. However, there is a high correlation of 0.755 between GDP and the exchange rate.

**Table 3.** Matrix of Correlations

Variables	Ln(excr)	Inflation	Ln(GDP)
Ln(excr)	1.000		
Inflation	-0.207	1.000	
Ln(GDP)	0.755	-0.417	1.000

**Result**

The unit root test results for stationarity indicate that nearly every variable is stationary in the first difference test. Table 4 reveals that only the logarithm of GDP per capita exhibits evidence of stationarity at the level with an intercept and trend. The other variables show stationarity at the first difference stage. Consequently, the results suggest that the equation should be estimated using ARDL with the Error Correction Term.

**Table 4.** Unitroot test

Variable	Level		First different	
	Intercept	Intercept + trend	Intercept	Intercept + trend
Ln(netmigrat)	-1.942	-1.816	-5.666***	-5.761***
Ln(Exch_rate)	-1.553	-1.971	-3.623**	-3.309*
Inflation	-2.349	-2.598	-3.994***	-3.920***
Ln(GDP_capita)	0.399	-3.315*	-2.715*	-1.849

The results from the ARDL estimation in Table 5 show that the R-squared value is 0.498, indicating that 49.8 percent of the variation in net migration can be explained by the exchange rate, inflation, and GDP per capita. The error correction term (ECT) has a negative value of -0.974, suggesting a speed of adjustment from the short run to the long run, and it is statistically significant at the one percent level. By using ARDL, the effects of the exchange rate, inflation, and GDP per capita are differentiated between the long run and short run. The results from Table 5 can be expressed in the equation as follows:

$$\Delta \text{Ln}(\text{netmigrat})_t = 4.037 - 0.974 (\text{Ln}(\text{netmigrat})_{t-1} + 0.754 \text{Ln}(\text{excr})_{t-1} + 0.004 \text{Inflation}_{t-1} - 1.666 \text{Ln}(\text{GDP})_{t-1}) - 0.754 \Delta \text{Ln}(\text{netmigrat})_t - 0.004 \Delta \text{Inflation}_t + 1.623 \Delta \text{Ln}(\text{GDP})_t$$

**Table 5.** Result from Autoregressive Distributed Lag with Error Correction Term

ECT t-1	-0.974*** (0.209)
<u>Long-run</u>	
Ln(excr) t-1	-0.754*** (0.154)
Inflation t-1	-0.004 (0.004)
Ln(GDP) t-1	1.666*** (0.327)
<u>Short-run</u>	
$\Delta$ Ln(excr) t	-0.734*** (0.239)
$\Delta$ Inflation t	-0.004 (0.004)
$\Delta$ Ln(GDP) t	1.623*** (0.488)
Constant	4.037* (2.015)
Observations	30
R-square	0.498

**Note:** Standard Error is shown in parentheses and \*, \*\*, \*\*\* indicate 10%, 5% and 1% statistically significant.

After conducting the ARDL estimation, a bound test is carried out to validate the short-run and long-run effects. The F-test results in 6.193 and the t-test yields -4.670. Both tests confirm the bound test with statistical significance at the five percent level.

**Table 7.** Result from Bound Test

	F - test		t – test	
Value	6.193		-4.67	
Critical value				
Significant level	I(0)	I(1)	I(0)	I(1)
0.1	3.023	4.184	-2.59	-3.476
0.05	3.72	5.046	-2.949	-3.888
0.01	5.413	7.122	-3.692	-4.732

The effect of the exchange rate is negative and statistically significant at one percent in both the long-run and short-run. The result suggests that a one percent increase in the exchange rate or LAK depreciation would lead to a 0.754 percent decrease in net migration (or an increase in emigration) in the long run and a 0.734 percent decrease in the short run. This suggests that as the LAK depreciates, earnings in Lao PDR become cheaper compared to price of imported goods and services, prompting both Lao and non-Lao workers to seek opportunities in other countries.

The negative effect of inflation on net migration is observed, although it appears to be small and statistically insignificant. The effect of -0.004 in both the long run and short run suggests that a one percent increase in inflation would lead to a decrease in net migration by approximately 0.4 percent. This finding indicates that while inflation does have some economic impact on net migration, the effect is minimal and may not significantly influence migration patterns.

The positive and statistically significant effect of GDP per capita on net migration in both the long run and short run indicates that a one percent increase in GDP per capita could lead to a 1.666 percent increase in net migration in the long run and a 1.623 percent increase in the short run. This suggests that higher income per person would reduce worker emigration of the country and potentially attract migrants from other countries seeking higher income opportunities.

### Conclusion

The COVID-19 pandemic resulted in business restrictions which significantly impacted businesses in Lao PDR by temporarily closing or reducing employment. Border closures, flight cancellations, and quarantine measures disrupted the tourism sector, causing widespread job losses and reduced incomes, affecting the country's foreign currency earnings. On the other hand, many Lao workers need to return to the country that led to a decrease in remittances, a key source of foreign currency. These factors, combined with a shortage of foreign currency, contributed to the depreciation of the Lao Kip against major currencies like the US dollar and Thai baht. As the Lao Kip's value declined, local wages became cheaper that consequently drive Lao workers to seek opportunities abroad while potentially dissuading foreign workers from entering Lao PDR.

The objective of this study is to analyze how the depreciation of the Lao Kip influences net migration in Lao PDR. The research methodology involves using the Autoregressive Distributed Lag model and analyzing 30 years of time series data.

The study found that the depreciation of the Lao Kip has a significant negative impact on net migration in both the short and long term. This implies that as the LAK currency loses value, resulting in lower costs of earning in Lao PDR compared to imported items, both Lao and non- Lao workers are more inclined to explore job prospects in other nations. Although inflation had a detrimental effect on net migration, the impact was minimal and not statistically significant. This suggests that while inflation does have an impact on net

migration to a certain degree, its influence is negligible and may not have a substantial effect on migration patterns. In contrast, GDP per capita had a favorable and statistically significant impact on net migration, both in the short and long run. This implies that an increase in individual income levels might decrease the emigration of workers from the nation and perhaps entice migrants from other countries who are looking for greater economic prospects.

## References

- Anderson, S. (2023). Economists say Increasing Immigration Will Reduce Inflation. *Forbe*, 1-10
- Black, R., Bennett, K., Thomas, D., & Beddington, J. (2011). Migration and climate change. *Migration and Climate Change*, 1-21.
- Borjas, G. J. (1994). The economic effects of immigration. *Journal of Economic Literature*, 32(4), 1667-1727.
- Cardillo, E. (2012). The impact of immigration on inflation: A review of the literature. *International Migration*, 50(2), 142-170.
- Castles, S., & Miller, M. J. (2003). *The age of migration: International population movements in the modern world* (Vol. 3). Guilford Publications.
- Czaika, M., & De Haas, H. (2014). The globalization of migration: Has the world become more migratory? *International Migration Review*, 48(2), 283–323.
- Delgado Wise, R., & Márquez Covarrubias, H. (2009). Understanding the Relationship Between Migration and Development: Toward a New Theoretical Approach. *Social Analysis*, 53(3), 85-105.
- Docquier, F., & Rapoport, H. (2010). Skilled migration and development: A review. *Economic Journal*, 120(548), 1288-1321.
- Development Research Institute (DRI) and International Organization for Migration (IOM) (2022). *Remittance Landscape in the Lao People’s Democratic Republic*. Policy brief. DRI and IOM, Vientiane.
- Dustmann, C., Fahr, R., & Skourova, I. (2016). Immigration and wages of natives. *Journal of the European Economic Association*, 14(4), 950-977.
- Dustmann, C., Frattini, T., Glitz, A. (2006). *The impact of migration: a review of the economic evidence*. Center for Research and Analysis of Migration, University College London, and EPOLICY LTD, 1-102.
- Fewer, L., & Greenwood, M. J. (2003). Immigration and wages in the long run. *International Economic Review*, 44(2), 661-682.
- Fry and Wilson. (2024). *Inflation and migration: Theory, evidence and implications for the Monetary Policy Committee*, NZIER. A report for the Reserve Bank of New Zealand, 1-48.
- Gao, Y. (2015). *The Impact of Exchange Rate Fluctuation on Labor Migration: Evidence from U.S. Nonimmigration Visa Statistics*. Union College, 1-40.
- International Monetary Fund. (2020). *The Macroeconomic Effect of Global Migration*. *World Economic Outlook: The Great Lockdown*, 1-26.
- International Organization for Migration (IOM) (2023). *Migration in the Lao People’s Democratic Republic: A Country Profile 2023*. IOM, Geneva.
- Kerr, S. P., & Kerr, C. A. (2011). Does immigration hurt U.S. workers? A review of the evidence. *Economic Journal*, 121(556), F229-F264.
- Massey, D. S., Alarcon, R., Durand, J., & Gonzalez, H. (1993). Return migration to rural Mexico: The influence of the US economic and political context. *Population and Development Review*, 19(3), 349-365.
- Ministry of Information, Culture and Tourism (MOICT). (2021). *Lao PDR’s Tourism Covid-19 Recovery Roadmap 2021 – 2025*. Ministry of Information, Culture and Tourism, Vientiane.
- Okkerse, S. (2008). The impact of immigration on the welfare state. A literature review. *International Migration Review*, 42(3), 683-736.
- Ouyang, A., Y., and Paul, S. (2018). *The Effect of Skilled Emigration on Real Exchange Rates Through the Wage Channel*. Asian Development Bank Institute Working Paper. No 823, p1-29.
- Relationship between net migration and economic development of European countries: Empirical conclusions (2023). *Business Perspectives*, (4), 232-243.
- Shin, A., J. (2021). *Exchange Rate and Immigration Policy*. *Comparative Migration Studies*. University of Colorado Boulder, 1-16
- Skeldon, R. (2006). *Population mobility and development*. Routledge.
- Skibinska, M. (2017). *The economic effects of emigration: a literature review*. *Biblioteka Nauki*,



(2).

Smith, J. (2005). "Inflation and migration: A panel approach." *Journal of Economic Studies*, 32(2)