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Foreign Capital, Infrastructure, and Migrant Remittances as Catalysts of Economic Growth in Thailand: An ARDL Perspective

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Abstract

This research aims to examine the relationship between migrant remittances and economic growth in Thailand from 2000 to 2024. The study employs the Autoregressive Distributed Lag (ARDL) model to analyse both long-term and short-term effects of migrant remittances on economic growth. The findings indicate a long-term connection between remittances and economic growth in Thailand. Additionally, the long-term and short-term estimators demonstrate that remittances, FDI and infrastructure development have positively influenced the economic growth of Thailand. The study points out that Thailand is required to boost FDI and Infrastructure development for economic growth.

Keywords: Remittances, FDI, Growth, ARDL, Thailand, Infrastructure development

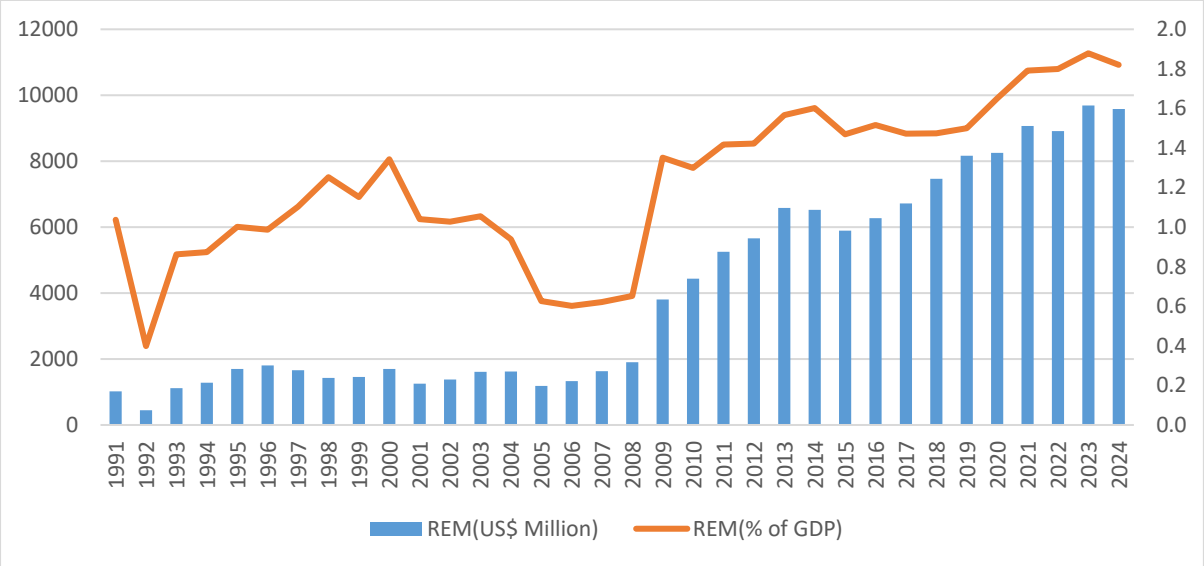
1. Introduction

In some last decades, researchers have been interested in knowing or identifying the key drivers of the economic growth of developing nations (Solow, 1956; Romer, 1986). Various key economic indicators are identified by many researchers, such as FDI, foreign aid, human capital, technological advancements, education, etc., whereas some researchers focus on the quality of institutional factors, political stability in the countries, and political freedom for the economic growth of the country. Many studies highlighted worker remittances as a key macroeconomic determinant of the economic growth of developing nations.

Migrant remittances are an important source of external financing for low and middle-income countries (Cazachevici et.al, 2019; Poonam et al., 2024). Remittances affect the economy of a receiving country through many transmission mechanisms. On the one hand, remittances are a significant source of external finances to the local economy that alleviates credit constraints, spurs investment, and promotes economic growth (Giuliano and Ruiz-Arranz, 2009). It also helps the country to face recessions and to increase disposable income and consumption. Some negative impacts of remittances can also be brain drain, Dutch disease, or less labour supply in the home country, etc. (Acosta et.al., 2009; Poonam et al., 2024).

The effect of inflows of workers' remittances on the economic growth of developing nations has been a burning topic of research for the last few decades. According to Giuliano & Ruiz-Arranz (2005) and Poonam et al. (2023), remittances form a major part of foreign inflows, surpassing FDI, earnings from exports, and foreign aid. World Bank reports on remittances show that workers' remittances are growing faster than other forms of FDI and foreign aid.

Thailand is a mixed economy with agriculture, industry, and services sectors. The contribution of agriculture to GDP has decreased over time, it remains an important sector, employing a significant portion of the population and contributing to food security and exports. Agriculture contributes about 8.6% to the GDP of Thailand. Thailand is one of the world's top tourist destinations, known for its beautiful beaches, rich cultural heritage, and vibrant cities. The service sector contributes about 55% to the GDP of Thailand.



Source: WDI (2025), Compiled by the Author

Figure 01: Trends of Remittances in Thailand

Figure 01 illustrates the trends of foreign remittances in Thailand from 1991 to 2024, showing both the total remittance inflows in US$ million (blue bars) and remittances as a percentage of GNI (orange line). The graph indicates a rise in remittance inflows over the years, particularly from 2009. The total foreign remittance was Million US$1019 in 1991 and became Million US$9584 in 2024. The REM (% of GDP) was 1.03% in 1991 and decreased to 1.82% of GDP in 2024 (Figure 01).

2. Literature Review

Siddique et.al. (2012) conducted a study on the relationship between remittances and economic growth in Bangladesh, India, and Sri Lanka during 1975 to 2006 by employing the VAR framework and found a positive association among the considered variables. Fayissa & Nsiah (2010), for the period 1980-2004, by employing the fixed and random effect model, found the positive impact of remittances on Africa's economic growth. Cazachevici et.al. (2018) observed the positive association between remittances and economic growth with the help of a meta-analysis. Feeny et.al. (2014), during the period 1971 to 2010, by using the GMM model, reported a positive association between remittances and economic growth in Small Island Developing States (SIDS). Iqbal & Sattar (2005) found that the real GDP has been positively affected by inflows of workers' remittances for the period 1972 to 2003 by employing the multiple regression framework in Pakistan. Abduvaliev & Bustillo (2020) conducted a study on the influence of remittances on economic growth and reduction in the poverty rate in CIS countries for the period 1998-2016 by using the OLS method and reported a positive and significant influence of remittances on economic growth and poverty reduction. Comes et.al. (2018), during the period 2010-2016, by employing a fixed and dynamic effects model, found that FDI and remittances as an important part of economic growth in Central and Eastern Europe. Qayyum et.al. (2008), during the period 1973 to 2007, by employing the ARDL model, reported the positive and significant influence of remittances on the economic growth

of Pakistan. Chowdhury (2016) and Saini (2022) examined the relationship between financial development, remittances and economic growth determinants for the period 1979-2011by employing the GMM model and found a positive relationship between economic growth and remittances in 33 top remittances recipient countries. Nwaogu & Ryan (2015) and Saini & Ravinder (2022) found the positive impact of FDI on economic growth in African countries, and the positive influence of remittances and foreign aid in Latin America and the Caribbean, by employing the OLS and GMM model.

Table 01 Review of Literature

Author	Country, Data period, Methodology	Response variable	Regressors	Empirical findings
Azam (2014)	Bangladesh, India, Sri Lanka and Pakistan. 1976-2012 OLS model	Economic growth	Worker's remittances	The positive association between selected variables.
Qayyum et.al. (2008)	Pakistan 1973 to 2007 ARDL model	GDP per capita	Worker's remittances	positive and significant influence of remittances on the economic growth.
Comes et.al. (2018)	Central and East Europe 2010-2016 Fixed and dynamic effects model	GDP per capita	FDI and remittances	FDI and remittances as an important determinants of economic growth.
Abduvaliev & Bustillo (2020)	CIS countries 1998-2016 OLS method	GDP per capita and poverty reduction	Remittances	a positive influence of remittances on economic growth and poverty reduction.
Iqbal & Sattar (2005)	Pakistan 1972-2003 Multiple regression framework	Real GDP	Remittances	Positive relationship of economic growth and remittances
Feeny et.al. (2014)	Small Island Developing States (SIDS) 1971-2010 GMM model	Real GDP	Remittances	The positive association between selected variables.
Fayissa & Nsiah (2010)	Africa 1980-2004 Fixed and random effects model	Real GDP	Remittances Real GDP	The positive association between selected variables.

Source: The Author

3. Empirical results and discussion

Table 02 Descriptions of variables

Variables	Proxy
Personal remittances received (current US$)	Personal remittances
GDP per capita (current US$)	Economic growth
FDI (BOP, current US$)	Foreign direct investment
Fixed telephone subscriptions (per 100 people)	Infrastructure development

Source: World Development Indicators (2020)

Per capita GDP is taken as the proxy of economic growth in the countries. Personal remittances received (current US$) as the proxy of Personal remittances. FDI (BOP, current US$) as the proxy of FDI and Fixed telephone subscriptions are taken as a proxy of infrastructure development.

Table 03 Descriptive Statistics

	GDPG	REM	FDI	DEV
Mean	5.073	1.41	14.321	5.64
Median	5.795	1.32	15.792	5.57
Maximum	8.690	1.60	22.431	4.88
Minimum	-2.778	-0.00	3.494	3.44
Std. Dev.	1.881	0.446	4.408	1.17
Skewness	-2.267	1.400	-0.250	-0.12
Kurtosis	9.790	4.089	1.629	2.14
Jarque-Bera	91.649	10.408	2.926	1.10
Probability	0.000	0.002	0.231	0.57
Sum	200.415	13.677	571.608	186.3
Sum Sq. Dev.	265.650	6.370	935.731	43.818
Observations	25	25	25	25

Source. The authors' computation from e-views 10.

The descriptive statistics reveal that GDP growth (mean 5.07) is quite diverse with a big standard deviation (1.88) and strong negative skewness, whereas remittances (mean 1.41) are comparatively stable with a positive skewness. There is the greatest variability in FDI (std. dev. 4.41) with the mean of 14.32, and infrastructure development (mean 5.64) is more constant. Jarque Ber results show that the growth of GDP and remittances is far away in their normality and FDI and infrastructure development are near normal. On the whole, the data indicate the existence of volatility in the growth of GDP and FDI, in contrast to more stable trends in the remittances and infrastructure development.

Table 04 Correlation Analysis

	GDPG	REM	FDI	DEV
GDPG	1			
REM	0.56	1		
FDI	0.52	0.06	1	
DEV	0.43	0.16	0.31	1

Source. The authors' computation from e-views 10.

The correlation matrix indicates that infrastructure development (DEV) is moderately and positively related to GDP growth (0.43), meaning that improved infrastructure boosts economic growth through improved productivity and connectivity. The correlation between

remittances and infrastructure (0.16) is very low, and this indicates that remittances are mostly utilized in households and not on development projects.

Table 05 Unit Root Testing Results

Unit Root Testing Results								
	PP				ADF			
	Level		First Difference		Level		First Difference	
Variables	t-Statistic	P-value	t-Statistic	P-value	t-Statistic	P-value	t-Statistic	P-value
GDPG	-1.45	0.88	-7.17	0.00	-1.68	0.71	-6.51	0.00
REM	-1.66	0.74	-5.28	0.00	-1.43	0.84	-5.18	0.02
FDI	-5.79	0.03	-22.16	0.00	-5.76	0.05	-6.32	0.01
DEV	-4.26	0.01	-10.55	0.00	-4.57	0.02	-7.38	0.00

Source. The authors' compilations from e-views 10.

The table indicates the outcomes of the unit root tests (PP and ADF) on the GDPG, remittances (REM), foreign direct investment (FDI) and development (DEV). Most of the variables (except FDI and DEV) are non-stationary at the level, but once the first difference has been taken, the variables are stationary in both the PP and ADF tests.

Table 06 Bound Testing Results

F-Bounds Test		Ho: No co-integration among the variables.		
Test	Value	Signif.	I (0)	I (1)
F-statistic	8.8479	1%	4.25	5.28
		5%	3.85	4.72
		10%	2.94	3.74

Source. The authors' computation from e-views 10.

The outcomes of the long-run co-integration of Remittances, FDI, infrastructure development and GDPG of Thailand came to be significant. The computed f-value is 8.8479, which is higher than the upper and lower bound values at a 5% significance level. This implies a long-run association between the selected variables in Thailand (Table 6).

Table 07. Long-run and Short-run Results

Long-Run Results				
Variables	Coeff.	Err.	t-Stat.	P-value
C	13.84	17.69	0.74	0.54
GDPG	1.59	0.69	-2.59	0.11
REM	0.53	0.43	-0.98	0.01
FDI	0.18	0.21	0.55	0.08
DEV	0.83	0.08	1.36	0.01
Short-Run Results				
Variables	Coeff.	Err.	t-Stat.	P-value
Coeff.	-1,66	0.26	-7.94	0.00
GDPG	0.53	0.12	3.93	0.02
REM	-0.34	0.05	-5.01	0.05
FDI	0.03	0.08	1.66	0.15
DEV	0.01	0.11	1.34	0.18

Source. The authors' compilations from e-views 10.

In the Long-run Bound Test results, as shown in the upper part of Table 07, the coefficients for the variables REM, FDI and DEV have positive and significant effects on economic growth. The results indicate that the REM, FDI and DEV have a positive impact on economic growth for Thailand. In the Short-run Bound Test results, as shown in the lower part of Table 07, the coefficient for the variable REM is positive and significant, and the coefficients of FDI and DEV are not significant.

Table 08. Diagnostic Testing Results

Diagnostic Tests	F-value	p-value
Ramsey RESET Test	3.14	0.17
Serial Correlation LM Test	1.91	0.88
Heteroskedasticity Test	0.03	0.72
Normality Test	4.08	0.16

Source. The authors' compilations from e-views 10.

The results of the Breusch–Godfrey correlation Test, Breusch–Pagan–Breusch-Pagan-Godfrey heteroscedasticity Test, Jarque test for Normality, and Ramsey's RESET Test confirm that the model is free from serial correlation, exhibits no heteroscedasticity, and the series follows a normal distribution (Table 8).

Conclusion

The purpose of this study is to investigate the connection between Thailand's economic development and migrant remittances from 2000 and 2024. The Autoregressive Distributed Lag (ARDL) model is used in the study to examine the short- and long-term impacts of migrant remittances on economic growth. The results show a sustained relationship between remittances and Thailand's economic growth. Additionally, the long-term and short-term estimators demonstrate that remittances, FDI and infrastructure development have positively influenced the economic growth of Thailand. The study points out that Thailand is required to boost FDI and Infrastructure development for economic growth. Governments must formulate policies that will direct remittances to productive activities by providing incentives to savings, investments, and entrepreneurial activities as opposed to household spending only. Simultaneously, FDI can be attracted to the country with the help of policies that simplify the process of doing business, promote the development of infrastructure, and guarantee the political and macroeconomic stability. Combined, such actions would help to make the most of growth-enhancing opportunities of both remittance inflows and foreign direct investment in promoting sustainable economic growth.

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