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Remittance-Growth Nexus: Does Financial Development Mediate? Evidence from Nepal and Tanzania

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Abstract

The international labor movement is possible after economic globalization, and remittance maintains profound economic relations across countries. Having limited comparative studies, this study examines the impact of remittance on economic growth with the mediating role of financial development in Nepal and Tanzania, covering time series data from 1995 to 2023. This study applied the Autoregressive Distributed Lag (ARDL) model to examine the long run cointegration among variables. Long-run results revealed that remittance has a positive relation with economic growth in Nepal but does not significantly influence the growth of Tanzania. Regarding the interaction term of financial development and remittance, it hurts growth in Nepal and does not significant impact on growth in Tanzania. However, financial development positively influenced the economic growth in Tanzania, whereas no significant impact on growth in Nepal. Furthermore, physical and human capital and inflation have a negative relationship; rural population has a positive relationship; and trade openness has no significant relationship with growth in Tanzania. In contrast, in Nepal, trade openness has a positive relationship, rural population has a negative relationship, and physical capital and human capital have no significant relationship with growth. Moreover, in the short run, financial development positively influenced the growth in Tanzania, and the financial mediation negatively impacted the growth in Nepal. The findings, therefore, recommended that the government should channel remittances to human and physical capital formation that may foster sustained growth; otherwise, relying on import-led growth and a blithe attention to other sectors' development may lead to Dutch disease.

Keywords: *human capital, physical capital, trade, inflation, ARDL.*

1. Introduction

Financial development and remittances are crucial to growth, mainly in emerging nations (Al-Malki et al., 2023). A well-functioning financial market channelizes remittances to give the maximum return, so boosting economic growth. Remittances can also be used to compensate for inefficient or non-existent credit markets, permitting local entrepreneurs to start up a profitable business despite a lack of collateral or high loan interest rates (Ngoma et al., 2021). Since the last moment of the twentieth century, the flow of remittances into poor countries has increased considerably. Remittances are currently the second source of outside cash, behind FDI (Karim et al., 2025).

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Islam and Alhamad (2022) reported that workers' remittances to poor nations have risen from US$0.6 billion in 1977 to US$2.5 trillion in 2024. For instance, remittances of more than 60 nations are 3% or more of GDP, whereas fragile and small states depend heavily on remittances (World Bank, 2024). Remittances to low-income nations were predictable to rise at a quicker pace of 14% over this period (Ali Bare et al., 2022). A study (Kobayashi, 2025) thus reported that economic circumstances in remittance-sending nations were significantly improved, such as China. The traditional growth drivers include labour forces, capital accumulation, technological progress, and policy mix (fiscal and monetary) strategies. Currently, growth drivers cover R&D innovation, remittances, and financial development. Financial development and remittances may influence economic growth and inequality by creating jobs and reducing poverty (Bangake & Eggoh, 2020).

Until the 1980s, Tanzanians and Nepalese financial sectors were dominated by state-owned organizations. Because competition was minimal, it was anticipated that liberalizing the banking industry would increase competitiveness (Ogede et al., 2023). In the 1980s and the 1990s, the financial sector was liberalized to encourage competition in both the banking and non-banking industries in Nepal and Tanzania, expecting an increase in international banks.

Dada and Akinlo (2023) stated that financial booms were not always beneficial to the economy, and some levels of financial expansion might be detrimental to growth. It is suggested that financial development may have an immediate and long-term impact on economic growth (Al-Malki et al., 2023; Sakharkar et al., 2023). However, Tanzania and Nepal officials have given this issue little attention. Likewise, the role of remittances in Tanzanian and Nepalese economic growth has gotten less attention, maybe due to their past larger scale. The research, thus, investigated the impact of remittances on financial growth in Africa (Adekunle et al., 2020).

Empirical evidence revealed that remittance inflows boost GDP; however, when institutional factors interact with remittance variables, only the intermediating regulatory quality measures were critical for growth (Adekunle et al. 2020). It is widely acknowledged that remittances have a significant beneficial impact on economic growth, and that high levels of financial inclusion alter the remittance and growth nexus in SSA countries (Sakharkar *et al.*, 2023). Given the findings that

poor governance has a negative impact on growth, improving financial infrastructure, which serves as the foundation for financial inclusion, while also protecting customers in sub-Saharan Africa by implementing reporting, fairness, and recourse controls (Ogede et al., 2023).

A study done in developing countries revealed that the first stage of moderated mediation, remittances have a positive influence on institutional quality and the financial sector, firming up the relationship among the variables, and the financial sector plays as a catalyst for economic growth, while institutional integrity, propelling economic growth in remittance recipient nations (Karim et al., 2025). In contrast, Islam and Alhamad (2022) showed that personal remittances have an asymmetric influence on economic growth, with positive remittance shocks decreasing economic growth and negative shocks increasing it, yielding a net positive effect.

According to the borrowing to fund accumulation theory, external capital inflows are critical for encouraging economic growth. Within this context, remittances might be viewed as an alternative or supplementary means of delivering foreign funds to poor nations. When backed by favorable policies and strong financial institutions, these inflows have the ability to raise the stock of productive assets to levels that match or even outperform traditional borrowing, encouraging long-term economic development (Kasidi & Mwakanemela, 2013).

Much research suggests that financial development and remittances accelerate economic growth. Furthermore, the moderating role of financial development with remittance shows that, while financial development and remittances are short-term growth drivers, they also play a complementary role in influencing long-term economic growth (Dada and Akinlo, 2023). Moreover, many studies found that there is a positive relationship between remittance and economic growth (Abdulai, 2023; Fayissa & Nsiah, 2010; Mohamed Aslam & Alibuhtto, 2025; Siddique et al., 2012). However, other studies also found that there is a negative and not significant association between remittance and economic growth (Barajas et al., 2009; Chowdhury et al., 2023; Tehseen Jawaid & Raza, 2012; Qutb, 2022; Shakya & Gonpu, 2021). On the flip side, only some studies were found that considered the mediating role of financial development in the remittance-growth nexus (Chowdhury, 2016; Khan et al., 2025; Peprah et al., 2019; Sobiech,

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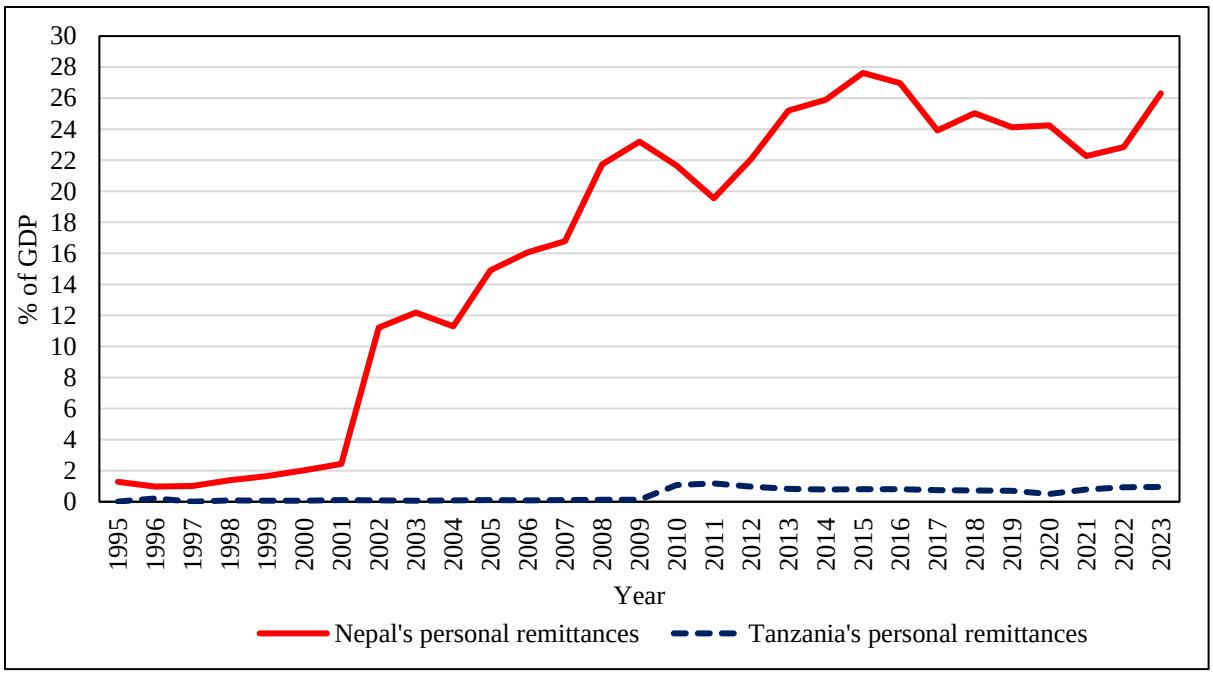
2019); and as far as we know, no particular study was found in the context of Nepal and Tanzania that incorporated the mediating role of financial development in the remittance-growth relation.



Note. Data obtained from World Development Indicators (2025)

Figure 1: *Personal Remittance Received (% of GDP)*

Figure 1 shows the personal remittance received as a percentage of GDP in Nepal and Tanzania. The trend of remittance received in both countries showed an upward trend; however, Tanzania had a minimum amount of remittance received compared with Nepal, which was not more than 1% of GDP. Nepal received an abundance of remittances, which can be a huge source of injection if it can be channeled through formal banking setups, like opening a remittance bank. Moreover, remittances to Tanzania and Nepal have increased significantly. In terms of financial sector development, remittances are projected to drive growth and enhance the lives of the people, particularly the poor and vulnerable. Nevertheless, this has not been well researched. Thus, this study aims to examine the remittance-growth nexus with the mediating role of financial development in Tanzania and Nepal.

The motives of this paper include: first, remittance is a huge source of foreign exchange and household income in both countries; second, as an agricultural economy, both countries have a

labor-surplus state, evidencing that the agricultural contribution to GDP is unaffected; third, remittance has been persistently growing over two decades; both countries are in lower state of financial development and can be promoted with formally inject resource from remittance in financial market; and finally, there are hardly a few study were carried out with considering the mediating role of financial development in remittance-growth nexus. This study, thus, attempts to fill the gap by investigating the impact of remittance on economic growth, considering the role of financial development in two different poles of the globe, Tanzania and Nepal. Employing the distribution lag model, this study underscores the mediating role of financial development in the remittance-growth channel that should be helpful for policymakers to strengthen the formalization and funneling of resources in the economy for economic prosperity.

Except for the Introduction Section, the paper is divided into three sections. Section 2 deals with data and methods of study. In Section 3, this paper explores the results and discussion as per the model specified in Section 2. Finally, Section 4 concludes the paper with its implications.

Data and Methods

Data, Variables, and Conceptual Framework

To examine the mediating role of financial development in the remittance-growth nexus, this study employed secondary time series, spanning from 1995 to 2023, obtained from the World Development Indicator (WDI), an open database of the World Bank. This study was sampled in account of two countries Nepal and Tanzania, representing two giant continents Asia and Africa. This study, thus, compared the impact of remittance on growth, interacting with financial development. Considering empirical studies (Peprah et al., 2019; Meyer & Shera, 2017), this study prepared the following variable description (Table 1) and conceptual framework (Figure 1).

Table 1: *Description of Variables*

Variables	Proxy	Descriptions	Measurement
EG	Economic growth	GDP growth (annual)	%
R	Remittance	Personal remittances, received	% of GDP
FD	Financial development	Broad money	% of GDP
I	Investment	Gross fixed capital formation	% of GDP
H	Human capital	School enrollment, tertiary	% Gross
TO	Trade openness	Total trade	% of GDP
Pop	Population	Population growth (annual)	%
P	Inflation	Inflation, GDP deflator (annual)	%

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Recent studies showed that remittance and financial development, with other controlling variables, significantly influenced economic growth (Abdulai, 2023; Adow, 2025; Dutta & Saikia, 2024; Pradhan et al., 2025; Ur Rehman & Hysa, 2021; Yadeta & Hunegnaw, 2022). Based on this recent literature, growth and economic progress are highly influenced by remittance, mediating with financial development. It is assumed that remittance inflow assists in financial development by enhancing liquidity and loanable funds, which in turn increases the mobilization of capital, and this funneling can promote economic growth. On the other hand, remittances directly boost household consumption and improve trade, employment, education, and inflation, which all boost economic development. Considering recent literature and the connection of remittance in growth mechanism, Figure 2 presents the remittance-growth nexus and mediating role of financial development in the envelop framework.

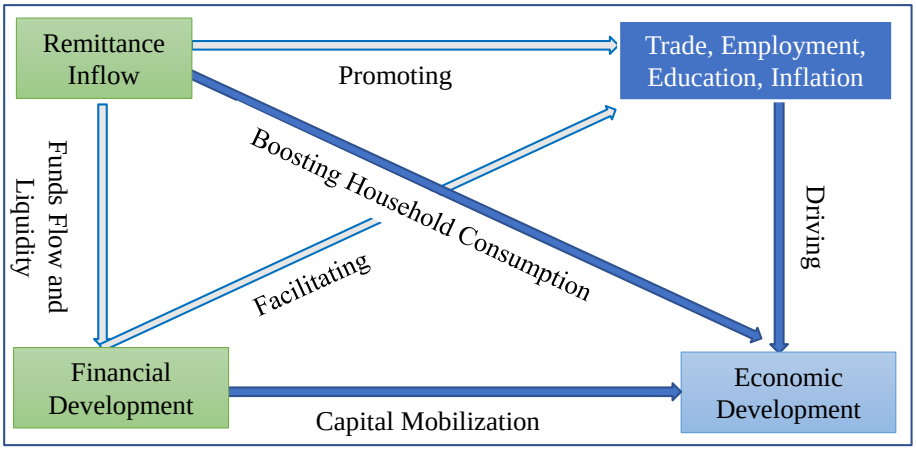

Figure 2: *Envelop Framework of Remittance-Growth Nexus Under Mediating Financial Development*

Research Methods

To begin, this study collected the data, and missing values were interpolated linearly, then taking the log for its smoothing. Due to a negative figure in a series, economic growth and population were transformed in logarithmic form, each named as variable V, by using the following formula (Busse & Hefeker, 2007; Gajurel et al., 2021): $\ln V_t = \ln(V_t + \sqrt{V_t^{\,2} + 1})$. Further, this study described data based on statistical summaries. Additionally, this study used conventional unit root tests, including the augmented Dickey-Fuller (ADF) test (Dickey & Fuller, 1979, 1981) and the

Phillips and Perron (1988) to confirm the stationarity of the time series under study. Then, the stationary variables of this study were employed to confirm the cointegration, using the bound test, for long-run association. Eventually, this study estimated the error correction model (ECM) that might help to know the causal connection between remittance and economic growth in Nepal, mediating through financial development. The linear form of the estimated model specification with mediating variable is as follows:

$$\ln EG_t = \varphi_0 + \varphi_1 \ln R_t + \varphi_2 \ln FD_t + \varphi_3 (\ln R_t * \ln FD_t) + \varphi_4 \ln I_t + \varphi_5 \ln H_t + \varphi_6 \ln TO_t + \varphi_7 \ln Pop_t + \varphi_0 \ln P_t + \varepsilon \quad \ldots(1)$$

where *EG* is economic growth, *R* is remittance received, *FD* is financial development, *I* stands for investment, H represents human capital, *TO* is total trade, Pop refers to population, and *P* is price, as indicated in Figure 1. This study employed the Autoregressive Distributed Lag (ARDL) model that can handle mixed orders of integration in time series and can produce the best results when whether sample size is small. This model was proposed by Pesaran et al. (2001), which offers a bound test for cointegration and error correction estimation, dealing with short- and long-run dynamics in the relationship between remittance (with financial development) and growth. The estimated ARDL (p, q_i) model is presented in Equation 2.

$$\Delta EG_t = \varphi_0 + \varphi_1 EG_{t-1} + \varphi_2 \ln R_{t-1} + \varphi_3 \ln FD_{t-1} + \varphi_4 \ln R_{t-1} * \ln FD_{t-1} + \varphi_5 \ln I_{t-1} + \varphi_6 \ln H_{t-1} + \varphi_7 \ln TO_{t-1} + \varphi_8 \ln Pop_{t-1} + \varphi_9 \ln P_{t-1} + \sum_{i=1}^{p} \phi_1 \Delta EG_{t-i} + \sum_{i=1}^{q} \phi_2 \Delta \ln R_{t-i} + \sum_{i=1}^{q} \phi_3 \Delta \ln FD_{t-i} + \sum_{i=1}^{q} \phi_4 \Delta (\ln R_t * \ln FD_t)_{t-i} + \sum_{i=1}^{q} \phi_5 \Delta \ln I_{t-i} + \phi_6 \sum_{i=1}^{q} \Delta \ln H_{t-i} + \sum_{i=1}^{q} \phi_7 \Delta \ln TO_{t-i} + \sum_{i=1}^{q} \phi_8 \Delta \ln Pop_{t-i} + \sum_{i=1}^{q} \phi_9 \Delta \ln P_{t-i} + \varepsilon_t \quad \ldots(2)$$

where Δ represents the differencing series; φ_0 is an intercept of the regression; while φ_1, …, φ_9 refer to the long run coefficients; ϕ_1, …, ϕ_9 measure short-run coefficients; p and q are the lags for dependent and independent variables respectively; and ε_t is error residuals, reflecting unobserved phenomena in the estimated model. Estimating Equation 2, the ARDL bound test is performed to test whether cointegration exists among the variables under study. If there is cointegration among variables, the ECM will be estimated. ECM for this study is estimated based on Equation 3.

$$\Delta EG_t = \sum_{i=1}^{p} \phi_1 \Delta EG_{t-i} + \sum_{i=1}^{q} \phi_2 \Delta \ln R_{t-i} + \sum_{i=1}^{q} \phi_3 \Delta \ln FD_{t-i} + \sum_{i=1}^{q} \phi_4 \Delta(\ln R_t * \ln FD_t)_{t-i} + \sum_{i=1}^{q} \phi_5 \Delta \ln I_{t-i} + \phi_6 \sum_{i=1}^{q} \Delta \ln H_{t-i} + \sum_{i=1}^{q} \phi_7 \Delta \ln TO_{t-i} + \sum_{i=1}^{q} \phi_8 \Delta \ln Pop_{t-i} + \sum_{i=1}^{q} \phi_9 \Delta \ln P_{t-i} + \lambda ECT_{t-1} + \varepsilon_t \quad \ldots(3)$$

It is assumed that the coefficient of error correction term (ECT), λ, must be negative and significant, which can measure the speed of convergence in the long run, where any disequilibrium prevails in the short run. Eventually, this study performed coefficient diagnostics and model stability tests to confirm the robustness of the ECM.

Results and Discussion

Descriptive Analysis of Variables

In a time series model, descriptive analysis highlights the nature, trend, and distribution of the variables. In this study, the remittance-growth nexus of Tanzania and Nepal is comparatively observed, considering the mediating role of financial development. Table 2 presents the descriptive summary of variables under study in both Tanzania and Nepal from 1995 to 2023.

Table 2: *Descriptive Analysis of Variables of Tanzania and Nepal*

Variables	Mean	Max	Min	SD	JB	P-value
Tanzania						
ln*EG*	1.69	2.04	0.69	0.30	15.97	0.00
ln*R*	-1.45	0.17	-4.51	1.37	1.96	0.37
Ln*FD*	2.96	3.20	2.54	0.20	4.04	0.13
ln*I*	3.32	3.76	2.32	0.39	5.83	0.05
Ln*H*	0.59	2.02	-0.77	0.86	2.41	0.30
ln*TO*	3.59	4.03	3.18	0.24	1.48	0.48
ln*Pop*	1.03	1.23	0.61	0.13	19.18	0.00
ln*P*	1.99	3.29	0.82	0.66	0.53	0.77
Nepal						
ln*EG*	1.95	2.89	-1.60	0.90	93.42	0.00
ln*R*	2.38	3.32	-0.02	1.18	6.45	0.04
Ln*FD*	4.22	4.79	3.63	0.35	1.37	0.50
ln*I*	3.17	3.52	2.95	0.17	2.60	0.27
Ln*H*	2.18	2.88	1.41	0.52	3.53	0.17
ln*TO*	3.85	4.16	3.59	0.13	1.03	0.60
ln*Pop*	0.86	1.61	-0.07	0.49	1.89	0.39
ln*P*	1.90	3.27	1.12	0.48	3.97	0.14

Note. min = minimum, max = maximum, SD = standard deviation, JB = Jarque-Bera, FD = M2 (% of GDP).

In Table 2, all the variables of Tanzania had lower standard deviations, implying that the variables had less variation from mean values. Also, most of the variables were normally distributed, as

indicated by non-significant JB statistics. Moreover, in Nepal, standard deviations were also lower, indicating less variability in the series, and as indicated by JB statistics, most of the variables were normally distributed. Thus, Table 2 *prima facie* confirms the smoothness and normality of the distribution of variables under study.

Test of Stationarity

Having a unit root in a time series analysis is a big problem that may produce a spurious and inconsistent relationship by violating several OLS assumptions. A spurious regression shows the highly extreme value of R^2 and a higher value of t-statistics with a lower p-value, but is meaningless, leading to faulty inferences (Box-Steffensmeier et al., 2014). This study thus employed the ADF and PP unit root test techniques to confirm the stationarity of the variables, and the results are presented in Tables 3 and 4.

Table 3: *Results of ADF and PP Unit Root Tests of Variables for Tanzania*

Variables	Augmented Dickey-Fuller test (ADF)				Phillips–Perron test (PP)				Order of integration
	At level		At Δ		At level		At Δ		
	C	C & T	C	C & T	C	C & T	C	C & T	
ln*EG*	-3.42**	-3.34*	-8.25***	-8.16***	-3.39**	-3.29*	-8.75***	-10.16***	I(0)
ln*R*	-2.63*	-4.70***	-13.34***	-12.99***	-2.59	-4.89***	-12.46***	-12.14***	I(0)
Ln*FD*	-3.82***	-3.59*	-2.15	-2.80	-0.96	-1.82	-3.77***	-3.67**	I(0), (1)
ln*I*	-1.69	-1.80	-6.52***	-6.66***	-1.65	-2.67	-7.20***	-9.36***	I(1)
Ln*H*	-0.93	-1.61	-8.79***	-8.68***	-1.03	-3.01	-9.05***	-9.01***	I(1)
ln*TO*	-3.26**	-2.81	-3.26**	-3.17	-1.86	-2.06	-3.18**	-3.06***	I(1)
ln*Pop*	-4.79***	-4.65***	-5.99***	-6.03***	-2.96*	-4.68***	-8.40***	-9.10***	I(0)
ln*P*	-2.15	-2.98	-7.10***	-3.81**	-2.01	-3.03	-7.51***	-7.34***	I(1)

Note. C = with constant; C & T = with constant and trend; Δ = first difference; * indicates significant at 10%; **significant at 5%; and *** significant at 1%.

In Tanzania, all variables under consideration were statistically significant at the level and the first differencing, as indicated by both ADF and PP unit root tests, confirming that the variables had no unit roots or were stationary with mixed order of integration, and none of them were order of integration I (2), allowing for an ARDL bound test for cointegration.

Table 4: *Results of ADF and PP Unit Root Tests of Variables for Nepal*

Variables	Augmented Dickey-Fuller test (ADF)				Phillips–Perron test (PP)				Order of integration
	At level		At Δ		At level		At Δ		
	C	C & T	C	C & T	C	C & T	C	C & T	
ln*EG*	-5.40***	-1.27	-8.66***	-8.69***	-8.57***	-11.62***	-18.13***	-17.58***	I(0)
ln*R*	-4.01***	-2.79	-1.56	-4.55***	-1.74	-1.01	-4.72***	-5.82***	I(0), I(1)
Ln*FD*	0.7503	-4.00**	-3.69**	-3.76**	-0.27	-2.40	-5.04***	-4.74***	I(1)
ln*I*	-2.91*	-1.04	-3.33**	-3.17	-1.08	-1.81	-3.43**	-3.27*	I(1)
Ln*H*	-0.59	-3.74**	-3.75***	-3.60**	-0.70	-1.61	-3.75***	-3.60**	I(0), I(1)
ln*TO*	-2.30	-2.71	-6.54***	-6.83***	-2.06	-2.57	-7.96***	-8.80***	I(1)
ln*Pop*	-2.90*	-6.10***	-2.23	-4.61***	-0.65	-1.59	-2.24	-2.07	I(0)
ln*P*	-3.60**	-3.52*	-8.03***	-7.87***	-3.56**	-3.52*	-8.76***	-8.56***	I(0)

Note. C = with constant; C & T = with constant and trend; Δ = first difference; * indicates significant at 10%; **significant at 5%; and *** significant at 1%.

As in Tanzania, ln*EG,* ln*Pop,* and ln*P* became stationary at the level, and the rest of them were stationary with first differencing in Nepal. The results of Table 4 indicated that none of the series was of order of integration I (2), and contained mixed order of integration, as evidenced by both ADF and PP methods. Tables 3 and 4 provided ample evidence of the crucial importance of the ARDL model that deals with mixed order of integration and studies a small sample case.

Test of Cointegration

After conducting the unit root tests for stationarity, this study employed the ARDL bound test for cointegration with 1 period lag. The F-bound test results are demonstrated in Table 5. The decision criterion for long-run cointegration is that the F-statistic must be above the lower and upper bounds critical values at the anticipated level of significance.

Table 5 : *F-Bounds Test Results of Cointegration*

Country	**Model**	**F-statistic**	**k**	**Bound**	**Critical values**		
Tanzania	ARDL (1, 0, 1, 0, 0, 0, 0, 0, 0)	9.515320	8		10%	5%	1%
Nepal	ARDL (1, 0, 0, 1, 0, 0, 0, 0, 0)	14.47103	8	I (0)	1.95	2.22	2.79
				I (1)	3.06	3.39	4.10

Observing lower and upper bounds of critical values at three different levels of significance, the results of Table 5 exhibited that there is cointegration among variables in both countries—Tanzania and Nepal. The F-bound test results of Tanzania (F = 9.515320) and Nepal (F = 14.47103) were greater than the lower and upper bounds critical values at a 1% level, meaning that

there is a long-run relationship among the variables. The results, thus, confirmed that remittance and growth, interacting with financial development, were associated in the long run. The cointegration results confirmed the level relationship among variables; thus, the long-run coefficients were estimated with a selected ARDL model.

Long-run Dynamics

The ARDL bound test (Table 5) confirmed that there is a level relationship between remittance and growth in Tanzania and Nepal. Thus, the long-run coefficients are presented in Table 6. Regarding the Tanzanian case, remittance (ln*R*) and its interaction with financial development (ln*FD*lnR*) have no statistically significant association with economic growth. These results reveal that Tanzania receives a small amount of remittance, not a priority for investing and productive activities, governance challenges, which might not significantly contribute to economic growth. On the flip side, interacting with financial development has not been effective in accelerating economic growth in Tanzania, meaning that the remittance may not be funneling into the formal financial channel, and state domination in the financial sector and a lack of resource mobilization for demand-stimulating activities may hinder the growth performance. These results contradict a recent study (Mushi, 2024) that unveiled remittance can promote social sector development and thereby influence growth in Tanzania. However, Musakwa and Odhiambo (2022) found no causal relationship between remittance and economic growth in Tanzania.

The results revealed that the economic growth of Tanzania has a long-run positive relationship with financial development (ln*FD*) and rural population (ln*Pop*) and a negative relation with investment (ln*I*), human capital (ln*H*), and inflation (ln*P*). The positive and significant (at 1%) coefficient of ln*FD* demonstrates that financial development positively influenced economic growth. This result offers a valuable insight that, including remittance, the financial sector development can channelize resources and facilitate trades, employment, and investment may enhance productivity capacity, thereby enhancing economic growth. Empirically, broad money, currency, and bank claims might cause economic growth (Odhiambo, 2005); on the other hand, financial efficiency and liquidity adversely affect the growth (Kapaya, 2021) in Tanzania.

Moreover, the results of Table 6 also revealed that both physical capital (ln*I*) and human capital (ln*H*) have a negative relationship with economic growth in Tanzania, implying that physical capital overhead and human capital formation in Tanzania may not be sufficient and directed toward the productivity-enhancing sectors in the long run. These results are partly consistent with an empirical study of the Tanzanian case that reported a positive impact of health and education but a negative impact of total investment on GDP (Bwana, 2023). Likewise, the coefficient of trade openness (ln*TO*) indicated that there is no statistically significant relationship between trade openness and economic growth in Tanzania, meaning that a weak industrial base, lack of industrial finance, limited infrastructure, external shocks, and some policy logjam may hinder the economic performance and thus found not significant relation. The studies found that trade openness does not cause growth (Yusuf & Omar, 2019), and the aftermath of liberalization, trade openness was positively associated with growth (Hamad et al., 2014) in Tanzania.

Table 6: *ARDL Results of Long-run Coefficients*

Variable	Tanzania	Nepal
ln*R*	-0.2288	5.6679**
	(0.602)	(2.380)
Ln*FD*	1.8648***	2.7627
	(0.965)	(1.794)
ln*FD**ln*R*	0.0935	-1.4244**
	(0.205)	(0.632)
ln*I*	-0.5383**	0.3049
	(0.249)	(0.957)
ln*H*	-0.6398***	0.7083
	(0.190)	(0.576)
ln*TO*	0.5798	5.4282***
	(0.438)	(1.117)
ln*Pop*	2.0489***	-0.8275***
	(0.450)	(0.277)
ln*P*	-0.3015**	0.0494
	(0.117)	(0.206)

Note. SE in parentheses * indicates significant at 10%; **significant at 5%; and *** significant at 1%.

Further, the rural population (ln*Pop*) has a positive relationship with economic growth at a 1% level of significance, meaning that as an agricultural economy, more than 65% of the populace is engaged in agriculture, it contributes 28% to GDP, and 43% faces sever poverty in Tanzania (World Bank, 2025), thereby increasing rural population can refill the urban migrated vacant and can enhance agricultural productivity through production sophistication and commercialization; consequently, economic growth may be rose as rise in rural population. On the other hand, there

was a significant negative relationship between inflation (ln*P*) and economic growth in Tanzania, indicating that a rise in price level can increase the input costs, and inflation-combating monetary measures may hinder economic growth. This result was consistent with Kasidi & Mwakanemela (2013) in the Tanzanian context.

Regarding Nepal, the results of Table 6 confirmed that remittance inflow (ln*R*), remittance interacting with financial development (ln*FD**ln*R*), trade openness (ln*TO*), and rural population (ln*Pop*) have a significant long-run relationship with economic growth (ln*EG*). Among these variables, remittance and trade openness were positively associated with economic growth. The coefficient of remittance was positively significant at 5%, meaning that a 1% increase in remittance leads to an increase in economic growth by 5.6679%. It was quite high, but with financial development and interacting with it, remittance can fill the resource gap and can promote trade and human capital as well as physical capital, resulting in higher economic growth. This result is consistent with many past studies of the Nepalese context (Adhikari et al., 2024; Dahal, 2014; Gajurel & Niroula, 2024; Singh & Pradhan, 2023), concluding that remittance can improve human capital, physical capital, and trade, thereby promoting economic growth.

However, Table 6 revealed that financial development (ln*FD*), physical capital (ln*I*), human capital (ln*H*), and inflation (ln*P*) are not statistically significant relationship with economic growth in Nepal in the long run, implying that remittance inflow and its interaction with financial section in Nepal fails to channelize for human and physical capital formation, to stimulate the domestic production, and to distract from financial channel. Although these results were not supported by many studies in the Nepalese context (Chaudhary, 2022; Dangal et al., 2022; Gajurel et al., 2021; Panthi & Devkota, 2024). Moreover, the coefficient of financial development and its interaction with remittance (ln*FD**ln*R*) have a negative association with economic growth in Nepal in the long run, indicating that there is an adverse effect of financial development mediation on remittance on economic growth in Nepal. This result is consistent with a recent study (Panthi & Devkota, 2024), concluding a substitutive role of financial development in the remittance-growth nexus. Similarly, the proximate causes behind this relationship may be low formalized remitted resources, household priorities on the unproductive sector, fuzzy consumption, and lack of a remittance bank for funneling resources to the productive channel.

The results also found that trade openness (ln*TO*) was positively and highly statistically significant for economic growth in Nepal in the long run, which is in contrast with some studies (Acharya, 2024; Gajurel and Dangal, 2023; Singh & Pradhan, 2023) and consistent with some empirical findings in the Nepalese context (Dhungel, 2024; Dahal et al., 2024; Pant et al., 2023). With remittance and financial development, trade rises significantly in Nepal through the aggregate demand channel, especially import-led trade growth in Nepal may lead to a rise in government revenue, thereby increasing productive activities through resource mobilization and economic growth. On the flip side, the result of Table 6 showed that the economic growth was inversely influenced by the rural population (ln*Pop*) in Nepal in the long run. The limited arable land, youth emigration, surplus labor available in agriculture, and lower industrial base may be reasons behind the inverse relationship between rural population and economic growth in Nepal.

The overall findings revealed that financial development and rural population have a positive relationship with economic growth, whereas investment, human capital, and price level or inflation have a negative relationship with economic growth in Tanzania. Surprisingly, remittance, mediating remittance with financial development, and trade openness have no significant impact on economic growth in Tanzania. Regarding the Nepalese context, remittance, trade openness played a crucial role in accelerating economic growth; however, financial development with remittance and the rural population negatively influenced economic growth. In Nepal, in contrast, financial development, investment, human capital, and inflation have no significant impact on economic growth. These findings, thus, confirm that the effect of remittance, financial development, and their interaction on economic growth seems to be experienced differently with the country-specific context. Studies found remittance, remittance mediating with financial development, has a positive impact, but not financial development on long-run growth; moreover, some other studies found negative relationship between remittance and growth; additionally, some studies revealed no significant impact of remittance on growth; and some studies concluded that financial development mediates for remittance-growth nexus (Kratou & Gazdar, 2016; Matuzeviciute & Butkus, 2016; Meyer & Shera, 2017; Kumar, 2013; Peprah et al., 2019, Pradhan et al., 2008; Sobiech, 2019; Sutradhar, 2020; Ur Rehman & Hysa, 2021; Yadeta & Hunegnaw, 2022).

Short-run Dynamics

ARDL also estimates the error correction model to examine the causal and short-run relationship among variables. Table 6 shows the results of the error correction model. The negative and significant error correction term (ECT_{t-1}), which is less than zero of Tanzania indicated that there is a long-run relationship between remittance and growth with a mediating role of financial development, implying that any disturbance in the short-run can converge back in the long-run quickly. On the other hand, negative and significant ECT_{t-1} of Nepal, which is between -1 to -2, is consistent with empirical studies (Gajurel et al., 2021; Jedidia et al., 2014; Narayam & Smith, 2006), revealed that there is a long-run relationship between remittance and growth with a mediating role of financial development in Nepal, implying that any dampen up swings and down swings in the short-run can converge oscillatory manner in the long run.

Table 7: *Results of Error Correction Model*

Variable	Tanzania	Nepal
C	-4.9030***	-45.0349***
	(0.438)	(3.271)
$\Delta \ln FD$	0.8781**	
	(0.343)	….
$\Delta \ln FD * \ln R$		-2.2900***
	….	(0.150)
ECT_{t-1}	-0.9526***	-1.4457***
	(0.085)	(0.104)
R^2	0.841714	0.903480
Adjusted R^2	0.829052	0.895758
S.E. of regression	0.131520	0.452430
Log likelihood	18.65700	-15.93623
Akaike info criterion	-1.118357	1.352588
Schwarz criterion	-0.975621	1.495324
F-statistic	66.47120***	117.0066***
Durbin-Watson statistics	2.248352	2.218317

Note. SE in parenthesis * indicates significant at 10%; **significant at 5%; and *** significant at 1%.

According to Table 7, the automatically selected ARDL-ECM model found that there is a positive relationship between financial development and economic growth in Tanzania in the short run consistent with previous studies (Fisman & Love, 2004; Peprah et al., 2019), implying that financial development can foster trade, offer credit to productive activities, provide employment, and contribute to human capital formation bring positive impact on growth performance. Moreover, in Nepal, the interacting variable ($\Delta \ln FD * \ln R$) was significant at 1%, but had a negative

relation with economic growth in short run, contrasting with an empirical study (Peprah et al., 2019) and supporting with a study (Luqman & Haq, 2016), indicating that the joint effects of remittance and financial development hinder economic growth, which may be due to leakage of remittance from formal financial channel and not funneling and not prioritized it for productive sector activities in Nepal.

Robustness of The Model

The ARDL model was statistically well fitted. According to Table 7, the R^2 of ARDL estimation of Tanzania and Nepal were 0.84 and 0.90, respectively, implying that the regressors explained any variations in the outcome variable by 84% and 90%, respectively. Further, the F-statistics of both countries' estimation were statistically significant, which shows that the estimated model was well fitted. Moreover, Durbin-Watson statistics also range between 1.5 to 2.5, confirming that both models were free from autocorrelation. Furthermore, for robustness of the estimated ARDL model, this study performed different coefficient diagnostics and stability tests, including serial correlation, heteroskedasticity, normality, and stability tests.

Table 8: *Results of Robustness Tests*

Tests	Test Statistics		P-value	
	Tanzania	Nepal	Tanzania	Nepal
Serial Correlation (LM Test)	0.710286	0.921878	0.3993	0.3370
Heteroskedasticity (Breusch-Pagan-Godfrey)	10.97064	13.27038	0.3598	0.2089
Normality (Jarque-Bera)	0.08973	1.64689	0.95613	0.4389
Stability:				
CUSUM			Stable	Stable
CUSUMSQ			Non-stable	Non-stable

Table 8 presents the results of different diagnostics and stability tests of the estimated ARDL model of both countries. The statistics regarding serial correlation (LM test), heteroskedasticity (Breusch-Pagan-Godfrey) tests, and normality (Jarque-Bera) tests were statistically not significant, indicating that the estimated models were free from serial correlation and heteroskedasticity and residuals were normally distributed. Moreover, CUSUM and CUSUMSQ tests also confirmed that the models were stable. The overall findings revealed that the estimated models were statistically robust.

Conclusion

This study investigates the remittance-growth nexus with the mediating role of financial development in Nepal and Tanzania. The time series data were used, which were obtained from WDI, an open data bank of the World Bank. Employing the ARDL bound test for cointegration, the results confirmed that economic growth has a long-run association with remittance, financial development, and remittance and financial development (interacting term), and other control variable investment, human capital, trade openness, rural population, and inflation. Moreover, financial development and rural population positively influenced the economic growth in Tanzania, whereas the impact of investment, human capital, and inflation on economic growth was negative in the long run, where financial development was also positively associated with growth in the short run.

Surprisingly, remittance and its interaction with financial development and trade openness did not statistically influence the economic growth in Tanzania. These results revealed that remittance inflow in Tanzania did not spur economic growth through capital formation but can enhance growth through financial development and population growth. In contrast, in Nepal, remittance and trade openness have a positive relationship with remittance and economic growth, with mediating financial development in the long run. However, financial sector integration with remittance adversely influenced the growth in both the short and the long run in Nepal. Likewise, the rural population adversely influenced the growth in Nepal in the long run. Further, financial development, human capital, physical capital, and inflation ignited a controversy that cannot be promoted by remittance and does not significantly influence economic growth in Nepal. The results of Nepal also concluded that remittance promoted the growth directly via consumption and trade channels, but remittance was not satisfactorily utilized for developing the financial market, human can physical capital formation, which consider the engine of economic growth.

The Tanzanian government should channelize and formalize the remittances to human and fixed capital formation; however, as a weak financial market, remittances should be mediated with financial development that can promote trade, thereby accelerating economic growth. Reflecting subtle differences with the Tanzanian economy, Nepal's government should prioritize formalizing resources to the financial channel, investing in human and physical capital that spur sustainable

growth in Nepal. As a result of the mountainous growth in remittance, import-led growth bungled the economy. The stylized facts from the two remittance-recipient economies offer ample evidence of crucial policy implications that the government of both nations should channelize their remittance resources through the financial market, even better to open a remittance bank and share the productive investing opportunities for migrant households, and remittances should be funneled to human and physical capital formation that bring the sustainable growth otherwise over reliance on remittance may lead to import then destruct the domestic productive forces and industrial base, thereby caused to Dutch disease.

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