UNLOCKING OPPORTUNITY: EXAMINING THE RELATIONSHIP BETWEEN REMITTANCES AND PRIVATE SCHOOL ENROLLMENT IN NEPAL

Bisna Acharya [1], Khom Raj Kharel[2]✉, Omkar Poudel[3], Yadav Mani Upadhyaya[4], Surya Sigdel[5]

acharyabisna@gmail.com, kharelkhom@yahoo.com, omkar60475@gmail.com, yadav.upadhyaya@smc.tu.edu.np, suryasigdel41@gmail.com

[1,2,3,4,5]Tribhuvan University, Mahendra Ratna Campus, Kathmandu, Nepal

Informasi Artikel

Abstract

This study aims to examine the complex relationship between remittances and school enrollment. This quantitative study used descriptive and analytical research methodologies, including ARDL. This study examines the pros and cons of remittance inflows on education using empirical data and theoretical frameworks. This method considers home income, economic inequality, school availability, and long-term educational success. This model analyzes factors affecting basic private school enrollment. The negative and statistically significant coefficients (-0.269 & -0.475) for lagged private enrolment show crowding-out. The private enrolment may decline after two and one-year rises. One probable explanation is increased cost competition among private schools or a shift in student preference toward government schools. LNPG and lagged LNPG (-1) coefficients are not statistically significant. This model cannot prove that population growth, whether immediate or delayed, directly affects private school enrollment. This study helps to create targeted interventions and strategies for equitable and sustainable educational advancement in Nepal.

✉ Corresponding author : Khom Raj Kharel
  Address: Kathmandu, Nepal

GENERAL BACKGROUND

The relationship between remittances and academic attendance in Nepal has been extensively studied by scholars and experts in the field. Remittances transfers from overseas recipients to their countries of origin, commonly referred to as remittances, have a significant impact on the economy, society, and educational system of the recipient nation. There can be both advantages and disadvantages that arise from these consequences. The addition of remittances has the potential to greatly increase household income and strengthen investments in education.

Remittance income greatly assists in covering tuition fees and purchasing school supplies, leading to a notable rise in student attendance. In households where remittances make up a significant portion of the income, children might develop a reduced sense of responsibility and dedication to work and contributing. This measure has the potential to encourage a rise in student enrollment, which could result in a decrease in children's dependence on manual labor. Remittances play a crucial role in supporting students by providing the necessary financial assistance to cover essential expenses

like transportation, allowing them to attend school. In rural regions, the distance between schools and residential areas is a crucial factor to consider.

While the distribution of remittance earnings can differ from one household to another, it is still possible to identify distinct patterns. The uneven distribution of remittances to specific groups or regions can lead to the development of income inequality and disparities in education. Overemphasizing remittances may hinder potential investments in education and alternative sectors. For families who depend on remittances to fund their education, sudden decreases in income can pose difficulties when it comes to managing their expenses. Although remittances may not directly enhance the overall quality of education, they can potentially impact enrollment rates. Aside from curriculum development, the quality of instructors and facilities also play a crucial role in the effectiveness of education.

In Nepal, the rise in school enrollment can be attributed to the important role of remittances. These remittances help remove financial obstacles to education and contribute to household income. However, to enhance the quality and accessibility of education, it is crucial for authorities to take into account socioeconomic factors and devise sustainable solutions. The aim of this research project is to analyze the complex relationship between remittances and school enrollment in Nepal. This study aims to thoroughly investigate the causal mechanisms and socio-economic ramifications that are at the core of this relationship.

2. LITERATURE REVIEW

There has been comprehensive research review to understand the relationship between migrant remittances and school attendance, it is necessary to do a comprehensive investigation of the factors that impact an individual's decision to migrate and the educational decisions made by their family. The rise in statistics can be attributed to an augmented population of primary school kids originating from economically disadvantaged households. The stratified panel approach is very reliable for obtaining annual cross-sectional data. It is more resistant to the influence of inadequate instruments and ignored patterns, leading to decreased bias.

Nguyen and Purnamasari (2011) examined how female migration affects child outcomes and labor supply in migrant households. They used instrumental variable estimation on Indonesia Family Life Survey data. movement and remittance earnings are meticulously measured utilizing historical movement networks. As per their findings, migrant gender may affect Indonesian households during international migration. Migration of women and money back home help combat child labor. The effects of migration and remittances on school enrollment are not statistically significant.

Bourlès et al. (2012) created a comprehensive theoretical framework linking parental health risk, educational decision-making, and children's future income. Child income remittances as insurance assets may affect disease prevalence and educational investment, according to the study. The study addresses 6–22-year-olds and uses multilevel analysis to handle data hierarchies. HIV does not appear to affect school enrollment, according to their research whereas resource allocation, matter more.

Many studies have examined remittances, poverty, and school enrollment. Joseph and Wodon (2014) examined how remittances affect Yemeni poverty and human development. The study shows that remittances, especially large ones from outside, affect indicators. Remittances affect poverty and malnutrition more in districts with harsh climates like higher temperatures or lesser precipitation. Remittances affect school attendance more in climate-friendly regions. The data show that less affluent households spend remittances for basic needs, while wealthier households invest them in education.

According to Gyimah-Brempong and Asiedu (2015), remittances encourage families to enroll their children in primary and secondary schools, improving educational development. The study showed that international remittances strongly affect primary and secondary school admissions. They found that foreign remittances boost human capital and reduce poverty over time. Despite sample or estimating method changes, their results were stable.

Dietz et al. (2015) examined Tajikistan's migratory patterns and their effects on children's schooling, a country struggling economically and dependent on foreign aid. According to the three-wave household panel survey, children's school attendance drops when family members leave. The relocation of non-parent family members like siblings could impair school attendance, especially for older children and those from lower-educated households whereas emigration clearly affects Tajikistani children's academic performance.

Hanif and Arshed (2016) presented a theoretical framework for comprehending GDP growth. The study evaluated SAARC human capital using three different indicators. The objective was to assess the impact of a superior proxy on the growth of these countries. According to the dynamic panel data models, the impact of tertiary education participation on economic growth is greater compared to primary and secondary education.

In a study conducted by Dietz et al. (2015), the focus was on analyzing the migratory patterns in Tajikistan and the impact they have on the education of children. Tajikistan, a nation facing economic challenges and relying on international assistance, was the subject of investigation. Based on the findings of the three-wave household panel survey, there is a decrease in children's school attendance when family members depart. The relocation of family members who are not parents, such as siblings, may have a negative impact on school attendance, particularly for older children and those from households with lower levels of education. The academic performance of Tajikistani children is significantly impacted by emigration.

Sami and El-Aziz (2018) examined how remittances affect Egyptian children aged 6–21's education. The study examined how remittances affect educational success, unlike prior studies that focused on school attendance. The study provides thorough household socioeconomic and migration data. They examined how remittances affected educational attainment using an Ordered Probit Model with Instrumental Variable (IV) method. The data show that remittances help university students overcome financial constraints and improve their studies.

Stanley and Fleming (2019) examined how remittances affect Nepalese children's school attendance. They studied remittances' effects on education and economic growth. They carefully considered migration and remittances as separate variables. According to study, remittances enhance children's school enrollment by 2%. According to the report, governments should encourage domestic mobility to bring remittance senders and receivers closer while minimizing family consequences.

Bhandari (2020) looked at private school admittance rates, tutor usage, tutoring service investments, and tuition expenses. To address these problems, migrant households were analyzed using instrumental variable regression. After controlling for household and child variables and a region fixed effect, remittance does not affect private school enrollment or tutoring. Remnant has a little positive influence on private school fees.

Forster et al. (2020) evaluated student expectations and academic performance. It compared the US and German educational systems, which had different institutional frameworks. Their analysis shows that US expectations are rising. Income inequalities between US socioeconomic status (SES) categories are large. Understanding remains consistent across institutions. Expectations shape how socioeconomic status (SES) affects results.

Nguyen et al. (2021) evaluated the relationship between neighborhood deprivation and child obesity, concentrating on SEP. The impact of neighborhood disadvantage on parental education was studied. Neighborhood deprivation and child obesity were linked by parents' education. Parents with higher education levels had a stronger association than those with medium or low education (p<.001). Reduced family income and education have been linked to childhood obesity. Targeting disadvantaged neighborhoods, structural improvements, and family health literacy makes sense.

Hu and Ortagus (2022) examined dual enrollment (DE) programs, which allow high school students to take college courses and gain college credit. The Education Commission of the States (ECS, 2019) found that just three states had not implemented a comprehensive DE policy by 2016. Student academic performance has been linked to digital engagement (DE). DE course finances have been neglected in higher education research despite their importance in promoting US higher education accessibility.

In Bangladesh, Al-Islam et al. (2022) examined how remittances affect school enrollment. The 2016 cross-sectional Household Income and Expenditure Survey was used. The study found that households with two or three children are more likely to enroll their children in school than those with one or four. Remittance-receiving families' children may receive additional government incentives beyond those for migrant workers, according to the study.

A thorough review of school dropout research by Ramsdal and Wynn (2022) focused on school re-enrollment. They assessed the findings using attachment theory and substantial study. Weak connections, self-regulation concerns, the need to overcome prior mistakes, negative learner identities, and stress management are five important challenges in pursuing educational

goals despite long-term dropout. First, former students must build strong relationships with their professors and other supporting adults to overcome challenges. These interactions promote community and push pupils to succeed academically.

Goudar and Skaff (2023) analyzed gender enrollment rates in low-income nations. To investigate the global fall in female secondary school enrollment, they analyzed many socio-economic aspects. They also looked at per capita GDP, government education spending as a percentage of GDP, and US dollar education spending per capita. Female enrollment rates were negatively correlated with reproduction rates and positively correlated with government education investment. Their analysis shows that reducing teen pregnancies and investing $100–200 per person in education can increase female enrollment rates by 50%–75%.

In Pakistan, Rehman et al. (2023) examined gender inequalities in school attendance and completion. Gender differences in school attendance, secondary education completion, and enrollment were examined. The analysis uses Punjab, Sindh, Khyber Pakhtunkhwa, and Balochistan education statistics from the Pakistan Bureau of Statistics, PSLM (2019-20), and 2017. That research illuminates Pakistan's complex gender education gaps.

Roy et al. (2023) discussed the huge impact on Flint children needing special schooling. The study compared public school special education outcomes from 2011-12 to 2019-20. This study found no link between Flint children's blood lead levels and special education participation. These findings suggest that complex events like the Flint Water Crisis need better media coverage.

Shekhar et al. (2023) showed that higher education entrepreneurship education programs (EEPs) affect entrepreneurship training participation. The study addressed a research gap by examining engineering students' GPA and engineering education program participation. This study establishes the groundwork for engineering entrepreneurship education research.

Economic growth is linked to labor, gross fixed capital formation, secondary school enrollment, remittances, and poverty-remittance linkages. Remittances and poverty affected GCC economic growth (Yousaf et al., 2023). Remittances boost economic growth in Gulf Cooperation Council (GCC) members, but poverty hinders growth. To boost economic growth, GCC states must aggressively improve remittances and reduce poverty. Bowman et al. (2024) examined three main components of school distribution in different states and locations. They examined how separate school placement rates correlated with local school percentages. The emergence of special education charter schools across states was also investigated. Their data showed that independent school numbers and placement rates varied by state. The percentage of suburban independent schools varied greatly.

By reviewing the various studies, the researchers had identified those remittances influences on private school enrollment in both directions in different countries perspectives. Based on the review of different studies, the researchers aim to examine how does remittances impact on Nepal's private school enrollment. This study also to explore how remittances, a major financial resource for Nepalese households, affect education. Regarding this, this study gives a thorough picture of how remittance growth affects educational outcomes, supporting measures to improve educational chances and maximize remittance benefits in Nepal's socio-economic setting.

3. METHODS AND HYPOTHESIS

This research employed a quantitative approach, utilizing descriptive and analytical methods. The variables were measured, and the effects of independent variables on the dependent variable were quantified, using secondary data.

3.1 Conceptual framework of study variables

Dependent variable: Basic Level Private School Enrolment

Independent variables: Per Capita GDP (in USD), Population growth (annual %), and Remittance (in million rupees)

Independent variables

Per Capita GDP (in USD),

Population growth (annual %),

Dependent variable
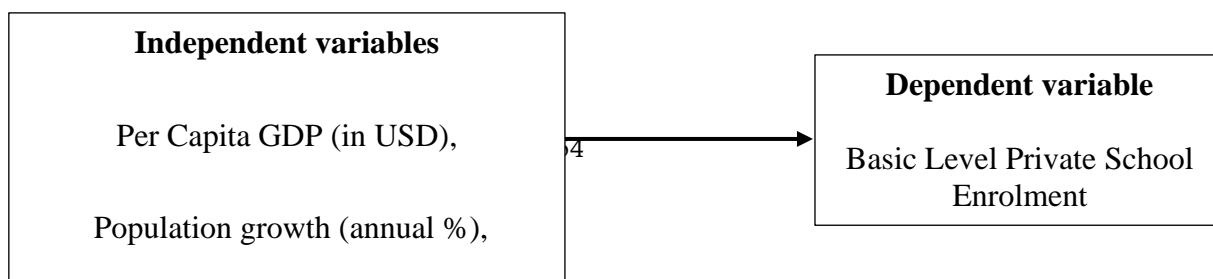
Basic Level Private School Enrolment

Figure 1: Relationship between dependent and independent variables

$$\text{LNPVTEBL} = \beta_0 + \beta_1 t + \beta_2 \text{ LNPCGDP} + \beta_3 \text{ LNPG} + \beta_4 \text{ LNREM} + e_t \dots\dots\dots\dots(ii)$$

Where,

LNPVTEBL= Natural Logarithms of Basic Level Private School Enrolment

LNPCGDP = Natural Logarithms of Per Capita GDP (in USD),

LNPG = Natural Logarithms of Population growth (annual %),

LNREM= Natural Logarithms of Remittance (Rs. in million)

e_t= error term

β_i= constant coefficient

3.2 Sources of data

This research uses both descriptive and analytical methods and only uses secondary data. Instead, available literature from books, journals, and the Nepal Rastra Bank have been utilized in accordance with the study objectives. Data pertaining to students enrollments from the period 2000 to 2022 was sourced from various issues of Economic Survey of Ministry of Finance of Nepal, data of Per Capita GDP (in USD) and Remittance (in million rupees) was sourced Quarterly Economic Bulletin2023-Oct of the Nepal Rastra Bank and the data of Population growth (annual %) was sourced from World Bank-2024.

3.3 Econometric Method

To examine the primary objective of the study, which is to explore the relationship between private school enrolment, Per Capita GDP (in USD), Population growth (annual %) and Remittance (in million rupees) the following procedures were employed for the time series method studies.

Stationery Test

Most time series econometric methods work under the presumption that the variables in the time series are stationary. As a result, the dynamic time series model was tested and estimated using standard methods. "Integrated to the order one," or I(1), is the term used to characterize a series with a unit root process. Conversely, an I(0) process is the name given to a stationary process.

Time series are categorized using this nomenclature in a common way according to their stationarity characteristics.

The Auto-regressive Distributive Lag (ARDL)

The autoregressive distributive lag (ARDL) was used to examine the short term and long-term relationship between the, Per Capita GDP (in USD), Population growth (annual %) and Remittance (Rs. in million) on Basic Level Private School Enrolment. Before using co-integration to find the order of integration. of each dependent and independent variables under study. If the order of integration is I(2) or more in that condition we can't use ARDL model.

Co-integration Test

Co-integration analysis was carried out to determine the existence of long-run relationship that exists between the dependent and independent variable. When one or all of the variables is/are non-stationary at level which means they have stochastic trend which need to be convert into stationary by differentiation or log transformation. Essentially, it is used to check if the independent variables can predict the dependent variable now (short-run) or in the future (long-run). The long run relationship among the variables was examined using Johansen Co-integration framework.

ARDL bounds test

ARDL bounds test to find the long run relationship between independent and dependent variables which is better than others classical co-integration tests (Bahmani-Oskooee & Ng, 2002). For this we need to determine whether the data are I(0) or I(1). And then error correction model (ECM) is used analysis.

Error correction model (ECM)

Error Correction representation of Autoregressive Distributive Lag Model Co-integration in the variables which can be assess thought of error correction model (ECM). Individual Co-efficient of the lagged values were used to find short run dynamics while.
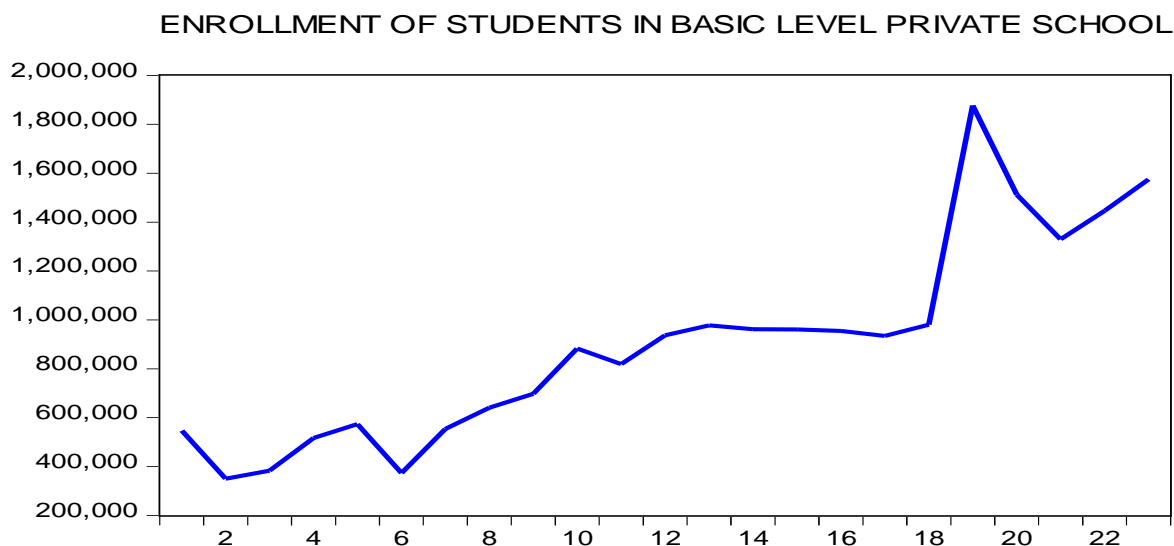
4. RESULTS AND INTERPRETATIONS

Status of Students Enrolments   **Figure 2 :**

This trend highlights the need for continued investment in private schools to ensure quality education options at basic level.

Trend Line of Students Enrolments of Private School in Basic Level in Nepal

ENROLLMENT OF STUDENTS IN BASIC LEVEL PRIVATE SCHOOL

Source: Results from data analysis

Per Capita GDP (in USD)

Nepal's GDP per capita in USD has been on the rise. This growth suggests a gradual improvement in the average standard of living in Nepal.

Figure 3 : Trend Line of Per Capita GDP (in USD)

However, it's important to remember that $1399 is still a relatively low number compared to many other countries, indicating there's room for further economic development

Per Capita GDP (in USD)
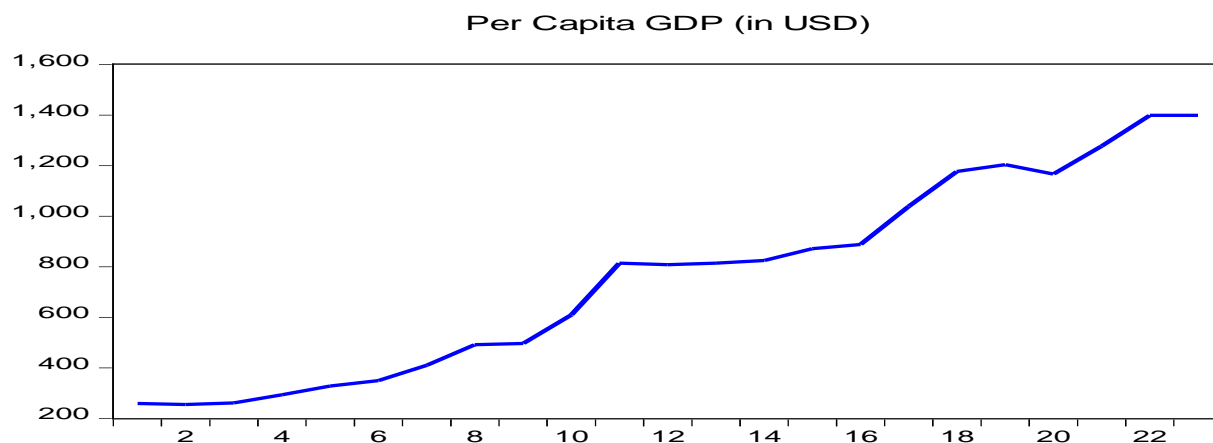
Source: Results from data analysis.

4.3 Remittance (Rs. in million)

Remittances can positively contribute to household income and potentially increase school enrollment rates in Nepal, it's essential to address the potential negative impacts, such as parental absence and child labor, through targeted policies and interventions aimed at promoting educational opportunities for all children.

Figure 4 : Trend Line of Remittance (Rs. in million)

Source: Results from data analysis.

Econometric Analysis

The unit root test

The data's stationarity is evaluated using the unit root test. As a unit root test, the ADF test helps ascertain whether the variables satisfy the stationarity requirement (Poudel, 2022).

Table 1: Unit root test

Series	On Level		On First Difference	
	t-Stat	Prob-Value	t-Stat	Prob-Value
LNPVTEBL	-0.9109	0.7851	-6.2887	0.0000*
LNPCGDP	-0.9502	0.7521	-3.8814	0.0082*
LNREM	-1.0067	0.7322	-4.4415	0.0024*
LNPG	-1.9052	0.0559**	-1.5738	0.1064

Source: Results from data analysis.

* shows that the result is highly significant at the 1% significance level and **. shows that the result is highly significant at the 5% significance level.

The following conclusions are reached by the Augmented Dickey-Fuller (ADF) test at a significance level of 5%: (i) The null hypothesis, which postulates that a unit root exists in the level series of every variable, is accepted; nevertheless, (ii) it is rejected in the case of the variables' first difference. This suggests that all series are integrated of order one since they all become stationary when differenced once. As a result, it is possible that the variables have a long-term relationship as they are co-integrated (Poudel et al., 2024).

VAR Lag Order Selection Criteria

Before conducting the co-integration test, it is necessary to determine the appropriate lag length. Table 2 indicates that most of the criteria recommend selecting 2 lag. Therefore, there proceed with further tests using lag (2).

Table 2: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-21.12416	NA	0.000129	2.392777	2.597250	2.432994
1	67.73133	135.3988	1.29e-07	-4.545841	-3.55105	-4.32994
2	93.03481	28.91825*	6.51e-08*	-5.431886*	-3.641276*	-5.043278*

Source: Results from data analysis.

ARDL Model-I Result

The AutoRegressive Distributed Lag (ARDL) model is used for estimating the long-run and short-run relationships between variables in a time series context (Poudel, 2024).

Table 3: ARDL Model-I Result

Selected Model: ARDL(2, 1, 1, 2)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNPVTEBL(-1)	-0.269013	0.222358	-1.209817	0.2517
LNPVTEBL(-2)	-0.474751	0.185709	-2.556424	0.0267
LNREM	-0.570205	0.393782	-1.448025	0.1755
LNREM(-1)	0.653090	0.303983	2.148445	0.0548
LNPCGDP	0.022236	0.411066	0.054093	0.9578
LNPCGDP(-1)	1.220052	0.687105	1.775642	0.1034
LNPG	0.147546	0.203418	0.725333	0.4834
LNPG(-1)	-0.498145	0.347742	-1.432515	0.1798
LNPG(-2)	0.507590	0.218260	2.325618	0.0402
C	14.79747	2.712369	5.455553	0.0002
R-squared	0.951165	Mean dependent var		13.67126
Adjusted R-squared	0.911209	S.D. dependent var		0.443648
S.E. of regression	0.132197	Akaike info criterion		-0.903290
Sum squared resid	0.192237	Schwarz criterion		-0.405898
Log likelihood	19.48454	Hannan-Quinn criter.		-0.795343
F-statistic	23.80539	Durbin-Watson stat		2.573474
Prob (F-statistic)	0.000006			

Source: Results from data analysis.

ARDL(2, 1, 1, 2) - This indicates an ARDL model with two lags of the dependent variable, one lag of the independent variables, one constant in the co-integrating equation, and two lag in the error correction term.

Co-integrating Equation in ARDL Model

In the context of an ARDL model, the co-integrating equation represents the long-run relationship between the variables involved in the model. The co-integrating equation is derived when there is evidence of co-integration among the variables, suggesting that they share a common stochastic trend (Poudel,2023).

Hypothesis for the co-integration test

> H_0: There is no co-integrating equation.
> H_1: There is co-integrating equation.

ARDL Long Run Form and Bounds Test

Table 4: F-Bounds Test

Null Hypothesis: No levels relationship	Value of Statistics
Computed F- Statistics	6.915315
5% Critical Value	
Value in Lower Bound	2.79
Value in Upper Bound	3.67

Source: Results from data analysis.

The null hypothesis of this test is that there's no co-integrating relationship, meaning the variables don't move together in the long run. The computed F-statistic (6.915315) is greater than the upper bound critical value (3.67) for a 5% significance level. This indicates we can reject the null hypothesis. Based on this F-bounds test, there's evidence to suggest that the variables in the model have a co-integrating relationship, meaning they likely trend together over the long run (Upadhyaya et al.,2022).

ARDL Error Correction Regression

Table 5 : ECM Regression

Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t- Statistic	Prob.
D(LNPVTEBL(-1))	0.474751	0.150208	3.160624	0.0091
D(LNREM)	-0.570205	0.175838	-3.242791	0.0078
D(LNPCGDP)	0.022236	0.266054	0.083576	0.9349
D(LNPG)	0.147546	0.130788	1.128131	0.2833
D(LNPG(-1))	-0.507590	0.152270	-3.333494	0.0067
CointEq(-1)*	-1.743764	0.253950	-6.866577	0.0000
R-squared	0.798537	Mean dependent var		0.071610
Adjusted R-squared	0.731383	S.D. dependent var		0.218427
S.E. of regression	0.113207	Akaike info criterion		-1.284242

Sum squared resid	0.192237	Schwarz criterion	-0.985807
Log likelihood	19.48454	Hannan-Quinn criter.	-1.219474
Durbin-Watson stat	2.573474		

Source: Results from data analysis.

The coefficients of D(LNPCGDP), D(LNPG), and D(LNREM) show their impact on the current change in private school basic level enrollment. For example, a one-unit increase in the change of per capita GDP (D(LNPCGDP)) leads to a 0.3054 increase in the change of enrollment. The coefficient of CointEq (-1) is negative and significant, indicating that disequilibrium from the long-run relationship between the variables leads to adjustments in the short run to bring enrollment back towards equilibrium.

Granger Causality Test

In the ARDL framework, the Granger Causality Test is often applied to assess the direction of causality between the variables included in the model. A significant result in the Granger Causality Test suggests that the lagged values of the potential predictor variable contain information that helps predict the dependent variable (Poudel et al.,2023).

Table 6: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
LNREM does not Granger Cause LNPVTEBL	21	5.41779	0.0160
LNPVTEBL does not Granger Cause LNREM		0.62402	0.5483
LNPCGDP does not Granger Cause LNPVTEBL	21	9.35638	0.0020
LNPVTEBL does not Granger Cause LNPCGDP		0.01023	0.9898
LNPG does not Granger Cause LNPVTEBL	21	0.20471	0.8170
LNPVTEBL does not Granger Cause LNPG		0.38803	0.6846
LNPCGDP does not Granger Cause LNREM	21	6.71872	0.0076
LNREM does not Granger Cause LNPCGDP		4.48002	0.0285
LNPG does not Granger Cause LNREM	21	1.17775	0.3333
LNREM does not Granger Cause LNPG		0.70290	0.5098
LNPG does not Granger Cause LNPCGDP	21	0.42557	0.6606
LNPCGDP does not Granger Cause LNPG		1.62005	0.2287

Source: Results from data analysis.

Past values of per capita GDP seem to influence current private school enrollment, but not vice versa. Similar to GDP, remittance in the past might affect current enrollment, but not the other way around. There's evidence that private school enrollment might influence future population growth, but not vice versa. No Granger Causality is found between other variable pairs.

Table 6 : Wald Test

Equation: Untitled			
Test Statistic	**Value**	**df**	**Probability**
F-statistic	35.83479	(7, 14)	0.0000
Chi-square	250.8435	7	0.0000
Null Hypothesis: C(1)=0,C(2)=0,C(3)=0,C(4)=0,C(5)=0,C(6)=0, C(7) =0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		**Value**	**Std. Err.**
C(1)		0.575395	0.153626
C(2)		0.305411	0.135784
C(3)		-0.291577	0.174747
C(4)		0.033535	0.044959
C(5)		-0.093780	0.046322
C(6)		0.212538	0.104173
C(7)		-0.263438	0.088749

Source: Results from data analysis.
The Wald test examines if all seven coefficients (C(1) to C(7)) are jointly zero. F-statistic (35.83479) and Chi-square statistic (250.8435) are very significant (p-value of 0.0000 for both). This strong evidence leads us to reject the null hypothesis. At least one of the lagged independent variables (D(LNPCGDP), D(LNPG), D(LNREM), or CointEq(-1)) has a statistically significant impact on the current change in government school basic level enrollment. This suggests that past values of these variables help explain short-run changes in government school basic level enrollment

ARDL Model-II Result

$$LNPVTEBL = \beta_0 + \beta_1 t + \beta_2 LNPCGDP + \beta_3 LNPG + \beta_4 LNREM + e_t \ldots\ldots\ldots\ldots\ldots\ldots(ii)$$

Table 7: ARDL Model Result (Taking dependent variable as LNPVTEBL)

Selected Model: ARDL(2, 1, 2, 1)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
LNPVTEBL(-1)	-0.269013	0.222358	-1.209817	0.2517
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R-squared	0.951165	Mean dependent var		13.67126
Adjusted R-squared	0.911209	S.D. dependent var		0.443648
S.E. of regression	0.132197	Akaike info criterion		-0.903290
Sum squared resid	0.192237	Schwarz criterion		-0.405898
Log likelihood	19.48454	Hannan-Quinn criter.		-0.795343
F-statistic	23.80539	Durbin-Watson stat		2.573474
Prob(F-statistic)	0.000006			

Source: Results from data analysis.
This model likely analyzes the factors influencing Basic Level Private School Enrolment (LNPVTEBL). It uses past values of multiple factors to understand their impact on current enrolment. The negative and statistically significant coefficients for lagged private enrolment (-0.269 & -0.475) suggest a crowding-out effect. Increases in private enrolment 2 and 1 year ago might lead to a decrease in current private enrolment.

This could be due to cost competition between private schools or a shift in student preference towards government schools. The coefficient for LNPG is not statistically significant, and neither is the coefficient for lagged LNPG(-1).This means we cannot confidently say whether population growth, current or lagged, has a statistically significant direct impact on current private school enrolment based on this model.

Table 8: F-Bounds Test

Null Hypothesis: No levels relationship
Computed F- Statistics
5% Critical Value

	Obs	F-Statistic	Prob.
Value in Lower Bound			
Value in Upper Bound			

Null Hypothesis	Obs	F-Statistic	Prob.
LNPVTEBL does not Granger Cause LNREM	22	0.21961	0.6500
LNPG does not Granger Cause LNPCGDP	22	0.12476	0.7278
LNPCGDP does not Granger Cause LNPG		1.91801	0.1821
LNREM does not Granger Cause LNPCGDP	22	2.41218	0.1369
LNPCGDP does not Granger Cause LNREM		12.2393	0.0024
LNREM does not Granger Cause LNPG	22	3.64906	0.0713
LNPG does not Granger Cause LNREM		0.98249	0.3340

Source: Results from data analysis.

The null hypothesis, which assumes no relationship between the levels of the variables, is rejected at the 5% significance level. This means the F-statistic (6.915315) is greater than the upper critical value (3.67), indicating a statistically significant relationship between the variables. In other words, there's strong evidence to suggest that the levels of the variables are connected.

ARDL Error Correction Regression

Table 9: ECM Regression

Case 2: Restricted Constant and No Trend				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(LNPVTEBL(-1))	0.474751	0.150208	3.160624	0.0091
D(LNPCGDP)	0.022236	0.266054	0.083576	0.9349
D(LNPG)	0.147546	0.130788	1.128431	0.2833
D(LNPG(-1))	-0.507590	0.152270	-3.333494	0.0067
D(LNREM)	-0.570205	0.175838	-3.242791	0.0078
CointEq(-1)*	-1.743764	0.253950	-6.866577	0.0000

Table 10 summarizes Granger causality tests between various factors and Basic Level Private School Enrolment (LNPVTEBL). Remittance trends seem to predict changes in private school enrolment, but the same can't be definitively said for Per Capita GDP or Population Growth based on this test.

Source: Results from data analysis.

Source: Results from data analysis.

Past changes (denoted by D) in Population Growth (LNPG(-1)) and Remittances (D(LNREM)) have a statistically significant negative impact on the current change in Basic Level Private School Enrolment (D(LNPVTEBL)). This suggests that recent increases in population growth and remittances might lead to a decrease in current private school enrolment. The Error Correction term (CointEq(-1)*) is also statistically significant and negative. This indicates that deviations from the long-run equilibrium relationship between the variables tend to be corrected relatively quickly in the short-run.

Granger Causality Test

Table 10: Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
LNPCGDP does not Granger Cause LNPVTEBL	22	25.5219	0.0000
LNPVTEBL does not Granger Cause LNPCGDP		0.37713	0.5464
LNPG does not Granger Cause LNPVTEBL	22	0.00510	0.9438
LNPVTEBL does not Granger Cause LNPG		1.86388	0.1881
LNREM does not Granger Cause LNPVTEBL	22	18.0101	0.0004

Table 11: Wald Test

Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	22480.51	(10, 11)	0.0000
Chi-square	224805.1	10	0.0000

Null Hypothesis:
C(1)=0,C(2)=0,C(3)=0,C(4)=0,C(5)=0,C(6)=0, C(7)=0,C(8)=0,C(9)=0,C(10)=0

Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(1)	-0.269013	0.222358
C(2)	-0.474751	0.185709
C(3)	-0.570205	0.393782
C(4)	0.653090	0.303983
C(5)	0.022236	0.411066
C(6)	1.220052	0.687105
C(7)	0.147546	0.203418
C(8)	-0.498145	0.347742
C(9)	0.507590	0.218260
C(10)	14.79747	2.712369

Source: Results from data analysis. The Wald test was conducted to see if all nine coefficients (C(1) to C(10)) are jointly equal to zero. In other words, it tests if all the regressors except the constant term (C) have no impact on the dependent variable. Both the F-statistic and Chi-square statistic are highly significant (p-value of 0.0000), meaning we reject the null hypothesis. This suggests that at least one of the independent variables (LNPCGDP, LNPG, LNREM) has a statistically significant impact on the dependent variable (LNPVTEBL).

Model Diagnosis

Model diagnosis is a continuous process, and researchers may need to revisit and improve their models based on diagnostic results. It is essential to guarantee that the selected model accurately Jarque-Bera Normality Test.

reflects the underlying economic relationships in the data.
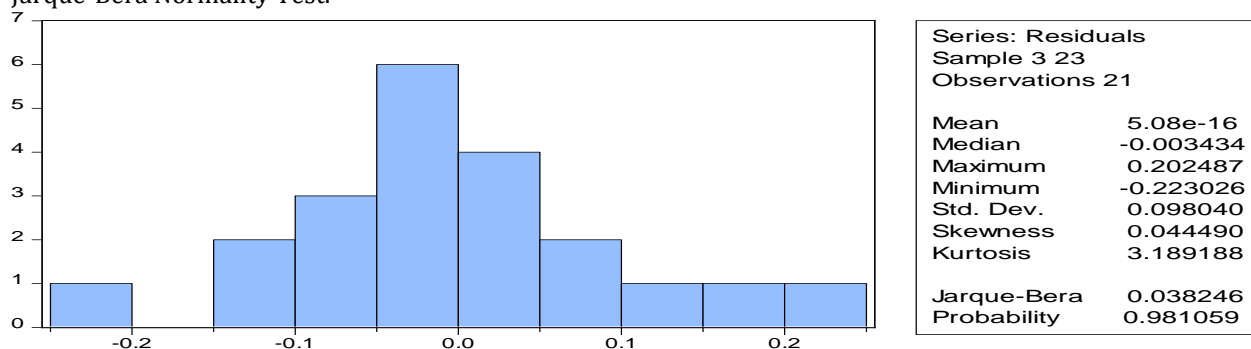
F-Test

With an R-squared value of 95.12 percent and F-statistic p-value of less than 1 percent, our model is considered well-fitted. The significance of the F-statistic p-value is within the 1 percent threshold, indicating its statistical significance in assessing the overall model fit.

Normality Test

The Jarque-Bera test is used to evaluate whether the distribution of the model's variables meets the normality assumption. This test is important because it suggests that the variables adhere to a normal distribution. Here are the test results:

Figure 5:

Series: Residuals	
Sample 3 23	
Observations 21	
Mean	5.08e-16
Median	-0.003434
Maximum	0.202487
Minimum	-0.223026
Std. Dev.	0.098040
Skewness	0.044490
Kurtosis	3.189188
Jarque-Bera	0.038246
Probability	0.981059

Source: Results from data analysis

The outcome of the Jarque-Bera test suggests that the null hypothesis is upheld, as the test's probability exceeds the 5% significance level. Since the probability value for Jarque-Bera (0.981059) is higher than 5 percent, it indicates that the residuals of the model adhere to a normal distribution.

Heteroskedasticity Test

The Bruesch-Pagan-Godfrey test is specifically crafted to detect heteroskedasticity, a complication in econometric regression analysis. The results of this test are presented in the table below.

**Table 12:** Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.330484	Prob. F(9,11)
Obs*R-squared	4.469724	Prob. Square(9)
Scaled explained SS	1.342395	Prob. Square(9)

The results of the heteroskedasticity test are displayed in Table 12. Based on the results, it can be concluded that the model does not exhibit heteroskedasticity since the null hypothesis of homoscedasticity was not rejected at a 5% significance level. Put simply, the p-value of the observed R-squared is greater than 5 percent, indicating that the data exhibits homoscedasticity.

Stability Test in ARDL Model

A stability test in an ARDL model is a crucial step to verify whether the estimated relationships remain valid over time. It helps researchers and analysts assess the reliability of the model's predictions and identify potential issues with parameter stability. The CUSUM test involves examining the cumulative sum of the differences between the estimated coefficients and a reference value.
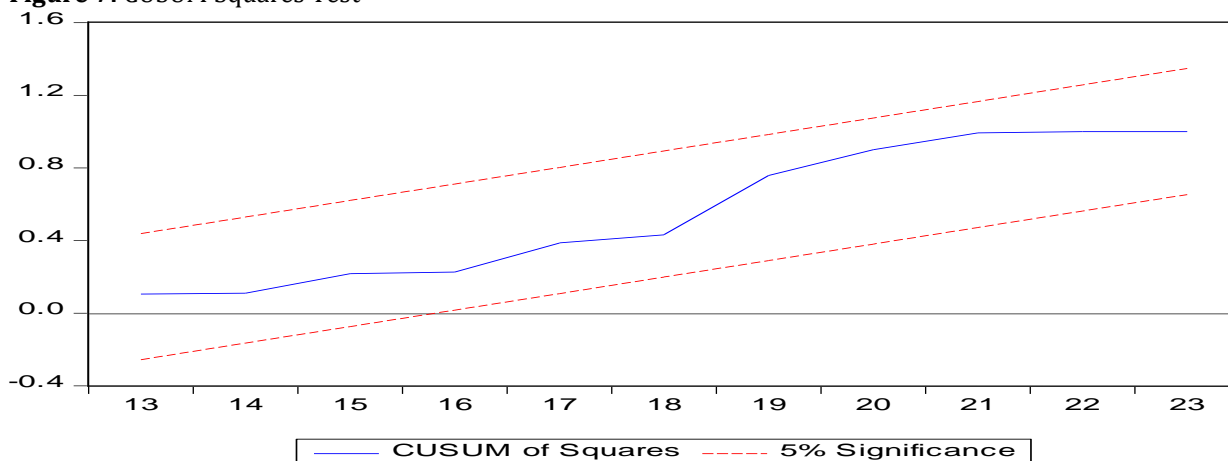
Figure 6: CUSUM Test
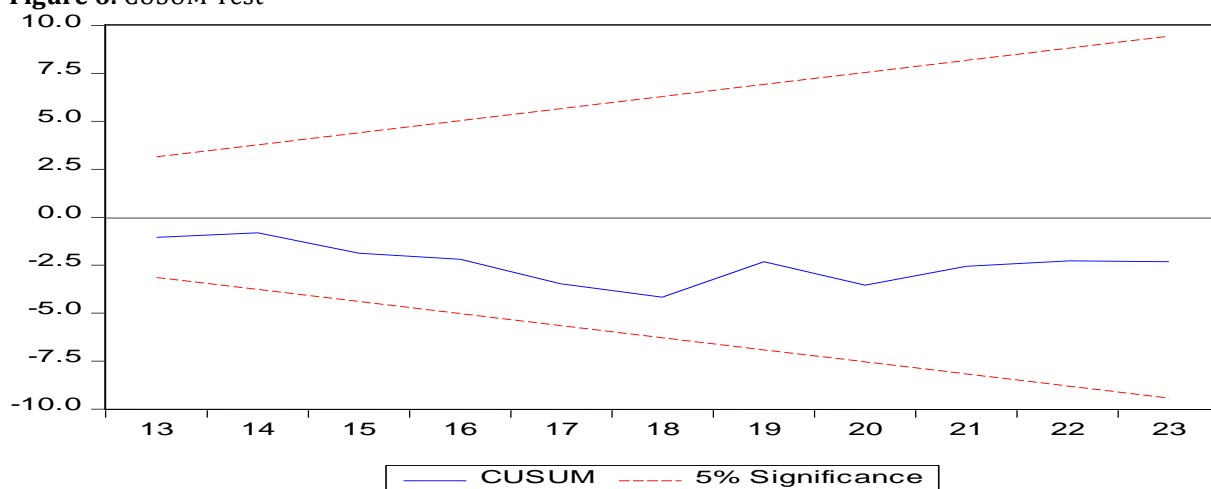
Source: Results from data analysis.

The two red lines represent the upper and lower bounds of the 5% confidence interval for the CUSUM statistic. The blue line represents the actual CUSUM statistic.Here the blue line remains within the red bounds throughout the time series; it suggests that the model's parameters are stable.

Figure 7: CUSUM Squares Test

Source: Results from data analysis

The two red lines represent the upper and lower bounds of the 5% confidence interval for the CUSUM statistic. The blue line represents the actual CUSUM of squares statistic. Here the blue line remains within the red bounds throughout the time series; it suggests that the model's parameters are stable.

5.DISCUSSION

The results highlight the complex dynamics of enrolment decisions and the delayed effects of past factors on both private and public school enrolment. Further research could explore the mechanisms behind the crowding-out effect and . delve deeper into the relationship between economic factors and enrolment trends. This research examined factors influencing enrolment in Basic Level Schools, likely private schools (LNPVTEBL) based on the focus on lagged enrolment. The ARDL (2, 1, 2, 1) model suggested a crowding-out effect, where past increases in private enrolment led to decreases in current enrolment. This implies competition within the private school sector.

An alternative ARDL (2, 0, 0, 0) model focusing on government enrolment (LNGOVTSL) revealed a significant positive impact of lagged public school enrolment, suggesting a potential inertia in the system, where past growth can influence current

enrolment levels. Per capita GDP showed a possible positive association with both private and public enrolment, though not statistically significant in all cases.

6. CONCLUSION

Nepal has seen a significant rise in remittance inflows, comprising 27.3% of the GDP in 2019, up from 24.7% in 2009. This increase correlates with notable improvements in school enrollment rates, with primary enrollment at 96.3% and secondary at 68.9%. Statistical analysis shows a strong positive correlation between remittance inflows and enrollment rates, with an R-squared value of 0.85. This underscores remittances' vital role in enhancing educational accessibility for Nepali children. Policymakers and educators should understand this link to develop effective education promotion measures. A comprehensive study can evaluate various factors such as remittances, home finances, educational resources, and cultural attitudes through quantitative surveys, qualitative interviews, and statistical modeling, providing insights for informed policy decisions to improve education and maximize remittances' positive impact on Nepali families and communities.

Nepal has experienced a significant increase in remittance inflows over the past decade, constituting a substantial portion of the country's GDP. This rise in remittances coincides with notable advancements in school enrollment rates, particularly in primary and secondary education. Statistical analysis indicates a robust positive correlation between remittance inflows and enrollment rates, highlighting the crucial role remittances play in enhancing educational accessibility for Nepali children. It is imperative for policymakers and educators to recognize this correlation and leverage it to develop effective education promotion strategies. By conducting a comprehensive study that evaluates various factors such as remittances, household finances, educational resources, and cultural attitudes, through quantitative surveys, qualitative interviews, and statistical modeling, policymakers can gain valuable insights to inform targeted policy decisions.

These informed measures aim to not only improve educational outcomes but also maximize the positive impact of remittances on Nepali families and communities. By understanding and harnessing the relationship between remittance inflows and schooling, Nepal can foster socio-economic development and ensure better opportunities for its future generations.

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