The Impact of Workers' Remittances on Household Consumption Expenditure in Nepal: A Time Series Analysis

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ABSTRACT

Nepal is one among South Asian countries to receive maximum amount of remittances from the countries of destinations. For last five years, it has maintained 4th position followed by India, Bangladesh, and Pakistan in terms of remittance received. As there is an increase in the inflow of remittances each year, Nepal is going to be a remittance-based economy very soon. The amount of remittance received is used for multiple purposes. However, the purpose of this study is to explore the impact of workers' remittances on household consumption expenditure in Nepal.

Despite the increasing importance of remittances in the Nepalese economy, the relationship between remittance and household consumption has not been adequately studied yet. Thus, the prime objective of this study is to examine the effects of remittances on household consumption in Nepal. To test the research hypothesis, time series data for 22 years, 2000/01 to 2021/22 are collected from different government authentic sources such as the National Statistics Office (NSO), Quarterly Economic Bulletins of Nepal Rastra Bank (NRB), Economic Survey of various issues published by Ministry of Finance (MOF), etc. The effect of remittance on household consumption is examined by using the ARDL Bounds Testing Model. This study found a positive and significant relationship between remittances inflow and household consumption in Nepal. Thus, the Nepal government and other stakeholders should prepare and implement suitable policies to increase the inflow of remittances only from formal channels so that it solves the problem of foreign currency constraints as well as the liquidity crisis in the domestic economy.

Keywords: Remittances, Household consumption, Time series, ARDL bounds testing.

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1. INTRODUCTION

The economic liberalization policy followed by the nations and globalization in the world has increased the movement of workers around the world market. This has encouraged workers to move from low-income and underdeveloped countries to developed, industrialized, and emerging economies in search of employment opportunities. This policy has also influenced the movement of Nepalese workers abroad basically after the 1990s. Nepalese youths are migrating every year abroad in search of employment opportunities due to economic and non-economic reasons. Even though the inflow of remittance is considered good for the recipient nations, there are several negative consequences. Mostly, the remittances income received is used for consumption purposes which has very little impact on long-term growth in the economy (Lamsal, 2023).

The history of the migration of Nepalese people for employment in foreign countries dates back around 200 years. It started before the early nineteenth century when the first Nepalese traveled to Lahore to join the army of the Sikh ruler of Punjab, India, Ranjit Singh. Labor migration started after the Anglo-Nepal Treaty of Peace and Friendship of 1816 which recruited 3000 Nepalese soldiers in the British Gurkha Regiment (Lamsal, 2015). The signing of a peace and friendship treaty between India and Nepal in July 1950 was a turning point in the movement of Nepalese migrants to India. Being impressed with the sincerity and hard work of the Nepalese workers/people, the Indian Government still recruits the Nepalese to the Indian Army, Police force, civil service, and private sectors. However, the movement of Nepalese people beyond India started with the enactment of the Foreign Employment Act of 1985. Likewise, the oil boom of the 1970s has created many employment opportunities in Middle East Gulf –countries for unskilled and semi-skilled workers (Shrestha, 2004).

Nepal has implemented an economic liberalization policy since the 1990s. The total volume of trade is increasing every year the volume of imports is increasing rapidly, and there is a slow change in exports. The total trade deficit was 9,076.8 million rupees in 2004 and now in 2020, it has reached 86, 321.0 million rupees (MoF, 2020). Thus, the increasing deficit in foreign trade has limited foreign exchange earnings. There has been slow growth in the tourism sector in these years, especially due to the COVID-19 pandemic; thus, it has lost foreign exchange earnings from tourism. Nepal was a food surplus country till the 1990s and now we are suffering from food shortage in Nepal. In recent years, Nepal has been importing huge quantities of food items from India and other countries. In such a situation, the provision of foreign employment and inflow of remittances has not only helped to minimize unemployment but has injected a significant amount of foreign currency into Nepal (Lamsal, 2023).

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The population growth of Nepal according to the Census year 2001 was 2.25 percent, 1.35 percent in 2011 and the recent growth rate as per the 2021 census result is 0.92 percent per annum (NSO, 2023). It shows there is relatively higher population growth in Nepal except in the 2021 Census. Every year around 500,000 labor force enter the Nepalese job market in search of employment opportunities in Nepal. But, very few of them could get employment in Nepal. So, searching for jobs in foreign countries became the ultimate option for a large number of Nepalese people. Even though there is a lot of potentiality in Nepal, due to the failure of the Nepalese economy to transform from subsistence agriculture to industry, service, and tourism sector, widening the scope of export trade, highly unstable politics, etc. are major reasons for the slow growth of employment opportunities in the domestic economy (Sigdel, 2010). As a result, on average, 2000 Nepalese youth go abroad every day for jobs.

There are many push and pull factors such as the lack of employment opportunities in the nation and availability of sufficient job opportunities in host countries, lower wage rates in Nepal, and higher wage rates in foreign countries. Such factors are responsible for attracting Nepalese workers abroad. Remittance earned from foreign countries has become a fundamental source of financial inflow in the Nepalese economy. Various studies conducted by researchers argue that remittance helps in employment generation, reduces the problem of unemployment, increases foreign exchange earnings and, thus contributes to accelerating overall economic development. World Bank (2011) found that almost half of all the households in Nepal had at least one migrant abroad either for work or for educational purposes.

Due to attractive and favorable policies targeted by the Indian Government to inflow remittances, India stood at rank one in terms of remittance-receiving countries in the world. In 2019, India received 83.10 billion US dollars in remittances, which is around 2.8 percent of Indian GDP. China and Mexico are in second and third positions in receiving remittances with US dollars 59.5 billion and 42.9 million respectively in the world (World Bank, 2021). In the SAARC region, India, Pakistan, and Bangladesh are receiving US dollars 26.10 and US dollars 21.80 billion respectively; which are 7.9 percent and 5.8 percent of their GDP. Nepal stood at 4th position in terms of receiving remittances, which is US dollars 8.10 billion and 27.3 percent as compared with the GDP of Nepal. Sri Lanka, Afghanistan, Bhutan, and Maldives are at 5th, 6th, 7th, and 8th rank in terms of receiving remittances from host countries (World Bank, 2021). Nepal received the highest amount of remittance from Qatar (Rs 53.93 billion), followed by UAE (Rs 40.87 billion), Saudi Arabia (Rs 38.15 billion), and Malaysia (Rs 29.66 billion) in 2019 (Kafle, 2020).

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The year-wise inflow of remittance in Nepal, annual percentage change, and percent of GDP from 2000/01 to 2021/22 are given in Table 1.

Table 1 Remittance, its annual percentage change, and as a percentage of GDP

Year	Remittances (Rs billion)	Annual Percentage Change in Remittance	Remittance as Percentage of GDP
2000/01	47.2	274.6	10.6
2001/02	47.5	0.6	10.3
2002/03	54.2	14.1	11.0
2003/04	58.6	8.1	10.9
2004/05	65.5	11.9	11.1
2005/06	97.7	49.0	14.9
2006/07	100.1	2.5	13.8
2007/08	142.7	42.5	17.5
2008/09	209.7	47.0	21.2
2009/10	231.7	10.5	19.4
2010/11	253.6	9.4	18.5
2011/12	359.6	41.8	23.5
2012/13	434.6	20.9	25.6
2013/14	543.3	25.0	28.0
2014/15	617.3	13.6	29.0
2015/16	665.1	7.7	29.5
2016/17	695.5	4.6	26.0
2017/18	755.1	8.6	24.9
2018/19	879.3	16.5	25.4
2019/20	875.0	- 0.5	22.4
2020/21	961.1	9.8	22.5
2021/22	1007.3	4.8	20.8

Source: MoF, *Economic Survey*, various issues from 2000/01 to 2021/22

Few studies were conducted by the researchers to explore the impacts of remittance on very small aspects such as reduction in poverty. Thus, my study found the research gap in the field of macroeconomic effects of remittances especially in the field of household consumption in Nepal.

Thus, the research question of this study is: how does remittance affect the household consumption made by the private sector in Nepal? Depending upon this research question,

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the objectives of this study are to identify the effects of remittances, Gross Domestic Product (GDP), and Consumer Price Index (CPI) on household consumption in Nepal from 2000/01 to 2021/2022.

2. REVIEW OF LITERATURE

A review of the literature links the past studies to the present study and makes the foundation for the present study (Kanel, 2016; Wolf & Pant, 2000; Kothari, 1990). Most of the previous studies have found a positive and significant impact of remittance on consumption expenditure made by the household sector.

Highlighting the role of foreign employment and remittance, Stark (1991) claimed that foreign migrants and remittance are helpful for financial intermediaries, and help to overcome the problem of rural credit and risk constraints. Stark further argues that remittance is equally useful for agricultural modernization and commercialization. The role of remittance in economic growth, and ultimately in consumption and welfare has been highlighted by various researchers (Olayungbo et al., 2019; Meyer et al., 2016; Mannam et al., 2015; Fayissa et al., 2010; Pradhan et al., 2008; Kaphle, 2018; Uprety, 2017; Pant, 2017; Dhungel, 2016).

Remittances received from host countries play a crucial role in enhancing consumption and promoting saving behavior in rural areas as well. In this context, Siddiqui et al. (2016) conducted a study to identify the impact of remittance on household consumption and saving behavior of rural households in Bangladesh. By applying the Path model, his study found that remittance has a statistically significant and positive impact on consumption of Bangladeshi people along with savings than remittance non-receivers. Moreover, they said that one of the major reasons for international migration is the search for employment opportunities, and better lifestyle in the host country, and a better lifestyle of family members in the home country as well.

Foreign employment and workers' remittance are equally important in the field of economic growth and poverty reduction in developing countries like Nepal. Highlighting the role of workers' remittance on economic growth and poverty reduction in developing Asia and Pacific countries, Jougwanich (2007) conducted a study using panel data from 1993 – 2003. This study used the regression model and the result concludes that remittances do have a significant impact on poverty reduction through increasing income, smoothing household consumption, and easing capital constraints of the poor people. It further says that remittances have less impact on the economic growth of the home country operating through investment and human capital development.

How does the remittance sent by migrants from abroad contribute to asset accumulation, boost consumption, and solve the problem of credit constraints in the home country? To address these issues, Quisumbing and McNiven (2007) carried out a study to cover the impact

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of migration and remittance on asset accumulation, consumption, and credit constraints in the rural Philippines. They used the longitudinal data set from the Philippines following 448 families in rural Mindanao. This study found that there is the largest impact of remittances on non-land assets i.e., consumer durables and educational expenditures.

Relating the remittances to rural households in China, Synder and Chern (2009) said that there is a significant role of remittance in rural households in China. By using the data from 9840 households surveys of agricultural households in three Chinese provinces (Heilongjiang, Henan, and Jiangsu), they use the Logit, Tobit, and OLS models to explore the relationship between remittances and household consumption as well as production. The conclusion of this study was remittances increase the consumption of non-durable goods.

Various researchers and institutions have conducted their studies to identify the impact of remittance on micro level and macro levels. In this context, Anjum et al. (2011) carried out their research work to explore the impact of workers' remittances on household consumption and investment in Pakistan. They used the time series data for 25 years collected from the Economic Survey from 1984 – 2009. They used the regression model (OLS) and found that remittance is positively related to enhancing household consumption and investment in Pakistan. This study concluded that, in the absence of workers' remittance, it is likely that foreign exchange, monetary, and fiscal policy could put great pressure on the nation.

How can we identify the level of social welfare in the society? Perhaps, one of the key determinants is consumption expenditure made by the household sector in the country. To explore this issue, Aslam and Sivarajasingham (2020) conducted a study to examine the inter-temporal relationship between workers' remittance and household consumption expenditure in Sri Lanka. They employed the time series data for 1975 – 2017 and used the econometric tool ADF and Phillips and Perron unit root test. They find that remittances have a positive long-run relationship with household consumption expenditure in Sri Lanka.

Out of the various sectors which are benefited from remittances, one of the major sectors is health. Do remittances contribute to the health sector or not? To address this issue, Gil (2004) examined the impact of remittances on household expenditure including the health sector in Mexico for the year 2004. The main purpose of this was to identify whether remittances have contributed to health expenditure in Mexico. This study uses the IV Tobit and regression models and finds that there are positive and statistically significant effects of remittances on the health expenditures made by Mexican households.

The effects of remittances on household consumption, education attendance, and living standards in Colombia were analyzed by Medina and Cardona (2010). They found positive effects of remittances on education, household consumption, and living standards in the decade of 1990s. Javid (2017) examined the impacts of remittances on household consumption and investment in four main villages of Tehsil Sargodha (Punjab), Pakistan. This study used the primary data collected from the field for one year (2011) and was analyzed by using a regression model. It concluded that remittance is positively related to

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household consumption and investment.

Neupane (2011) used the simultaneous equation model to examine the relationship between inflow of remittance in Nepal; and private consumption, private investment, economic growth, and import trade of Nepal by using the time series data from 1990 – 2008. He used remittances, consumption, investment, import, and economic growth as major variables and the main variable of interest is remittance. This study concluded that there is a positive relationship between remittance and household consumption in Nepal. The inflow of remittance contributes to boosting private consumption in Nepal. Likewise, Ghimire (2016) said that remittance plays an important role in external sector stability, which promotes household consumption in the nation.

3. RESEARCH METHODOLOGY

3.1 Data Sources and Variables

This study is designed to identify the impact of remittances on household consumption expenditure in Nepal by using secondary data. It used the time series data for 22 years, from 2000/01 to 2021/22, published by the Ministry of Finance in an Economic survey of various issues, data published in the quarterly economic bulletin by Nepal Rastra Bank (NRB), publications of National Statistics Office (Former CBS) and other authentic sources. The major variable of interest in this study is remittances. Besides remittances, other control variables used in this study are gross domestic product (GDP) and consumer price index (CPI). Time series data are analyzed by using the ARDL Bounds Testing Approach. Unit root for stationary is checked by using the ADF Unit Root test. Empirical results are obtained by using EViews 10 software.

3.2 An Empirical Model Specification

This study aims to explore the impact of remittance on household consumption expenditure. Most of the research reports show that more than 80 percent of remittances received in Nepal are used for consumption purposes. The amount of remittance received by households affects the consumption made by household sector. Thus, the consumption function, adding remittance and other control variable consumer price index (CPI), RGDP, and CPI is written as:

PVTCt = f (REMIt, RGDPt, CPIt) …….. (1)

Where,

PVTCt = Domestic/household consumption expenditure of private sector,

RGDPt = Real GDP at period t,

REMIt = Remittance income received in year t,

CPIt = Consumer price index in period t, and,

f stands for functional relation between dependent and explanatory variables.

The linear form of the regression equation for the consumption function is:

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$PVTCt = \beta_0 + \beta_1 REMIt + \beta_2 RGDPt + \beta_3 CPIt + \eta_t$ ..... (2)

After applying log-linear to equation (2), the econometric model for private consumption becomes:

$LnPVTCt = \beta_0 + \beta_1 LnREMIt + \beta_2 LnRGDPt + \beta_3 LnCPIt + \eta_t$ ..... (3)

In equation (2), PVTCt is the dependent variable; Remit, RGDPt, and CPIt are other control variables. ηt represents the stochastic error term.

Similarly, β_0, β_1, β_2, and β_3 are the parameters to be estimated and η_t is the stochastic error term. The expected signs of parameters β_1, and β_2 are positive and β_3 is negative expecting that household consumption increases due to an increase in the inflow of remittances and real GDP, and decreases due to a rise in CPI in the economy. The sign of intercept β_0 may be positive or negative.

Depending upon the above objective and research question, the null and alternative hypotheses set by this study are:

H0: $\beta_0 = \beta_1 = \beta_2 = \beta_3 = 0$

i.e. The inflow of remittances, GDP & CPI have no contribution to the private consumption of Nepal, i.e., they have zero values.

H1: $\beta_0 \neq \beta_1 \neq \beta_2 \neq \beta_3 \neq 0$

i.e. The inflow of remittances, GDP & CPI contribute significantly to household consumption in Nepal by private sector, i.e., they do not have zero values.

Among the methods developed to investigate cointegration, Pesaran and Shin (1999) developed and used the ARDL bounds testing approach to identify cointegration (Dahal, 2013; Sapkota, 2023). The general form of the ARDL Model as per Pesaran and Shin (1999) is given below:

$$Y_t = \beta_0 + \beta_1 Y_{t-1} + \beta_2 Y_{t-2} + ... + \beta_k Y_{t-p} + \alpha_0 X_t + \alpha_1 X_{t-1} + \alpha_2 X_{t-2} + ... + \alpha_q X_{t-q} + \varepsilon t \quad ..... (4)$$

Where,

Yt = dependent variable at period t,

Y_{t-i} = lagged values of Y

β_I = coefficients of lagged values of Y

$X_{t-i.}$ = lagged values of independent variable 'X'.

α_I = coefficients of lagged values of 'X'.

εt = error term

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4. EMPIRICAL FINDINGS

4.1 Unit Root Test

This study attempts to explore the effect of remittances on private consumption in Nepal with the help of time series data, analyzed by using the ARDL model. The very common problem of time series data is the stationary problem or unit root problem in data. Thus, the first step in the ARDL approach is to identify whether the selected variables are stationary or not i.e., order of integration. To apply the ARDL model, the variables used in the model should be stationary at I(0) and I(1) or a combination of both. However, none of the variables should be integrated at I (2) (Pesaran et al., 2001; Dahal, 2013; Shukla, 2020).

The most popular unit root test is given by Dickey–Fuller, popular by the name of the Augmented Dickey–Fuller (ADF) test given by the following equation (Dahal, 2013).

$$\Delta Y_t = \alpha + \beta_t + \lambda Y_{t-1} + \delta_1 \Delta Y_{t-1} + \ldots\ldots\ldots + \delta_p \Delta Y_{t-p} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots (5)$$

Where, Y = time series variable, α = constant, β = coefficient on a time trend(t), p = Lag order of the autoregressive process, and εt = pure white noise error term.

While calculating the ADF unit root, the null hypothesis (H_0) is tested against the alternative hypothesis (H_1) as follows:

H_0: Variables are not stationary i.e., they have unit root

H_1: Variables are stationary i.e., they have no unit root

In this model, rejection of the null hypothesis implies the variables are stationary.

Table 2 Result of ADF Test for Unit Root

Variables	Level: I (0)		First Difference: I (1)	
	t-statistic	p-value	t-statistic	p-value
LnPVTC	- 2.5254	0.5031	- 4.9773	0.0046
LnREMI	- 1.9782	0.9336	- 4.5572	0.0511
LnRGDP	- 2.4481	0.4005	- 3.2662	0.0212
LnCPI	- 2.2233	0.5564	- 4.3732	0.0015

Source: Calculated by Author using EViews10.

Table 2 shows that all variables used in this study are stationary at first difference; I (1). Thus, the ARDL model is suitable for it (Pesaran et al., 2001).

4.2 Descriptive Statistics

The summary statistics of selected variables for this study are given in Table 3.

Table 3 Descriptive Statistics

	LNPVTC	LNREMI	LNRGDP	LNCPI
Mean	14.11662	12.71098	14.35855	5.420514

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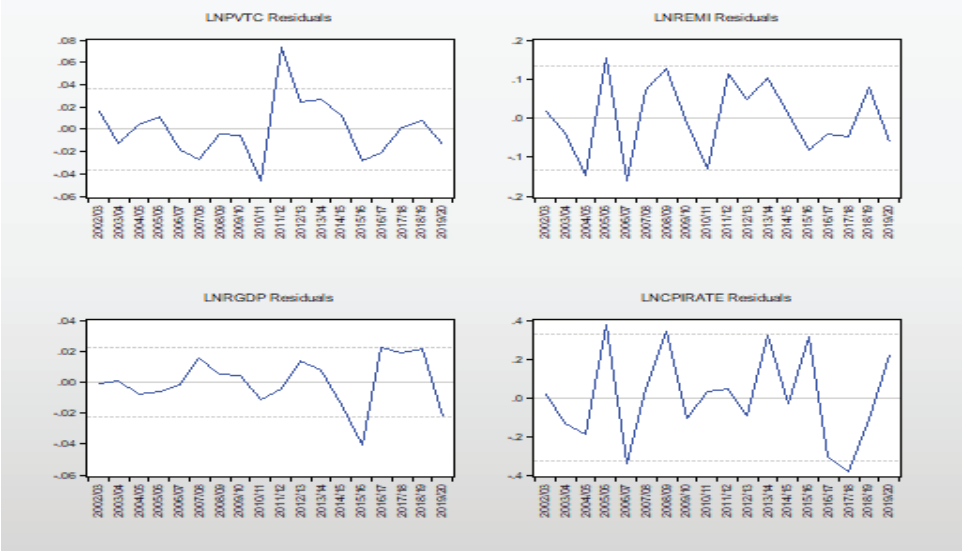
Median	14.09007	12.78523	13.45182	5.258288
Maximum	13.48389	13.47417	13.88665	5.879709
Minimum	13.78290	11.74012	13.99790	4.606175
Std. Dev.	0.248563	0.640134	0.254885	0.450164
Skewness	-0.002679	-0.335134	0.149425	0.046118
Kurtosis	1.562601	1.549834	1.822198	1.540394
Jarque-Bera	1.780034	2.127123	1.230458	1.782533
Probability	0.412808	0.345228	0.540529	0.410146
Sum	263.3324	234.2195	267.1718	104.4167
Sum Sq. Dev.	1.091334	7.785632	1.234347	3.681172
Observations	22	22	22	22

Source: Calculated by Author using EViews 10.

Data presented in Table 3 show the summary statistics of all the selected dependent and independent variables. It includes calculated values of mean, median, standard deviation, etc. All the variables are normally distributed as the p-value of the Jarque-Bera test is more than 5 percent.

The graphical summary is presented in Figure 1.

Figure 1 Graphs of Selected Variables



4.3 Lag Length Selection

To estimate the ARDL model, for Bounds Testing and Error Correction models, Lag length is required (Mamun & Kabir, 2023). Mamun and Kabir (2023) claim that taking the lag of 1 – 2 is appropriate for time series data. The most popular Lag operators used by researchers include FPE, AIC, SC, and HQ. The optimal Lag length is that which has the lowest values as calculated by each method (Sapkota, 2023). The calculation of the appropriate Lag length for this study is presented in Table 4.

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Table 4 Lag Length Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	49.78667	NA	7.26e-08	-5.087407	-4.889547	-5.060125
1	119.5670	100.7939*	1.96e-10*	-11.06301*	-10.07370*	-10.92659*
2	130.0708	10.50377	5.04e-10	-10.45231	-8.671569	-10.20677

* indicates lag order selected by the criterion

4.4 ARDL Bounds Test for Co-integration and Error Correction Model

Bound tests for cointegration are carried out to identify the relationship between dependent and independent variables. It is an econometric tool that is used to identify whether there is a long-run relationship between the dependent and independent variables used in a study or whether there is a short-run relationship between them. According to Pesaran et al. (2001), the ARDL bound test is based on Joint F – Statistics, it is tested under the null hypothesis (H0) i.e., there is no cointegration among the variables used in the model against the alternative hypothesis (H1) i.e., there is cointegration, using lower bound I (0) and upper bound I (1). Table 5 shows the empirical result of bound tests for cointegration and Table 7 shows the result of the Error Correction model.

Table 5 ARDL Bounds Test Result

ARDL Long Run Form and Bounds Test

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	11.77311	10%	2.01	3.1
k	3	5%	2.45	3.63
4		2.5%	3.47	4.18
		1%	3.62	4.86
			Finite Sample: n=35	
Actual Sample Size	21			
		10%	-1	-1
		5%	-1	-1
		1%	-1	-1
			Finite Sample: n=30	
		10%	-1	-1
		5%	-1	-1
		1%	-1	-1

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Data presented in Table 5 show the ARDL bound test results for cointegration. The F-Statistic for the bounds test is 11.77311 which is greater than the lower bound value of 3.62 and upper bound of 4.86 at a 1 percent level of significance. Thus, the empirical result justifies that there is a long-run relationship between household consumption with remittances, GDP, and CPI in Nepal.

4.5 ARDL Model Estimation

The Auto Regressive Distributed Lag (ARDL: 1, 0, 0, 0) model is selected based on AIC, SC, and HQ criteria. This study uses 22 years of time series data, so the maximum lag order is 1 (Pesaran et al.,2001). Table 6 shows the empirical findings of the ARDL model.

Table 6 Empirical Result of the ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNPVTC (-1)	0.578485	0.166654	3.639088	0.0035
LNREMI	0.094764	0.045563	2.063747	0.0519
LNCPI	-0.125183	0.067673	-2.164162	0.0469
LNRGDP	0.401652	0.143499	2.561732	0.0211

R-squared	0.978171	Mean dependent var	13.13613
Adjusted R-squared	0.975783	S.D. dependent var	0.229690
S.E. of regression	0.027366	Akaike info criterion	-4.173753
Sum squared resid	0.012252	Schwarz criterion	-3.975014
Log-likelihood	43.64881	Hannan-Quinn criteria.	-4.148993
Durbin-Watson stat	2.102147		

*Note: p-values and any subsequent tests do not account for the model selection.

The empirical results presented in Table 6 show that private consumption is significantly affected by remittance inflow in Nepal, the consumer price index (CPI) as well as GDP of Nepal. There is a positive and significant effect of remittances and GDP on private consumption and a negative effect of CPI on private consumption. The value of R^2 is 0.978171. It shows that the explanatory variables selected in the study explain the dependent variable i.e., private consumption by 97 percent. The value of D - W Statistics is almost 2 (i.e., 2.102) which shows that there is no autocorrelation between the selected variables in this model. The result of this study is similar with Aslam & Sivarajasingham (2020), Siddiqui et al. (2016), Neupane (2011), Anjum et al. (2011), Synder & Chern (2009) and Quisumbing and McNiven (2007).

The empirical finding of the error correction model is presented in Table 7. The coefficient of CointEq is negative (-0.432535) and the probability is significant. It indicates that there is a long-run equilibrium relationship between the variables selected in this study.

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Table 7 ARDL Error Correction Regression

ECM Regression				
Case 1: No Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	-0.432535	0.057659	-7.485448	0.0000

4.6 Residual Diagnostics

Once the empirical model is estimated, residual diagnostic tests are applied to evaluate the model residuals as well as to test the model adequacy. For the same, serial correlation (LM Test) and Heteroscedasticity tests are conducted and their results are presented in Table 8, and Table 9.

Table 8 Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.056175	Prob. F (2,13)	0.9475
Obs*R-squared	0.159795	Prob. Chi-Square (2)	0.9242

Table 9 Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.086780	Prob. F (4,14)	0.1389
Obs*R-squared	7.098091	Prob. Chi-Square (4)	0.1208
Scaled explained SS	11.98912	Prob. Chi-Square (4)	0.0184

The summary statistics and results of residual diagnostics are presented in Table 10.

Table 10 Results of Residuals Diagnostics Tests and Conclusion

Test	Serial Correlation	Heteroskedasticity Test
F-Value	0.0561	2.0867
Probability	0.9475	0.1389
Conclusion	No serial correlation as Prob. > 10 percent.	No Heteroskedasticity as Prob. > 10 percent.

4.7 Stability Diagnostics

The stability test for the private consumption model has been applied to investigate the stability of the long-run and short-run parameters. For the same, cumulative sum (CUSUM) and cumulative sum of squares (CUSUM SQ) tests are employed. It verifies the stability of the ARDL model for the structural break. The results of the CUSUM and CUSUM of Square tests are shown in Figure 3 and Figure 4 respectively.

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Figure 3 Plot of Cumulative Sum (CUSUM) of Recursive Residuals

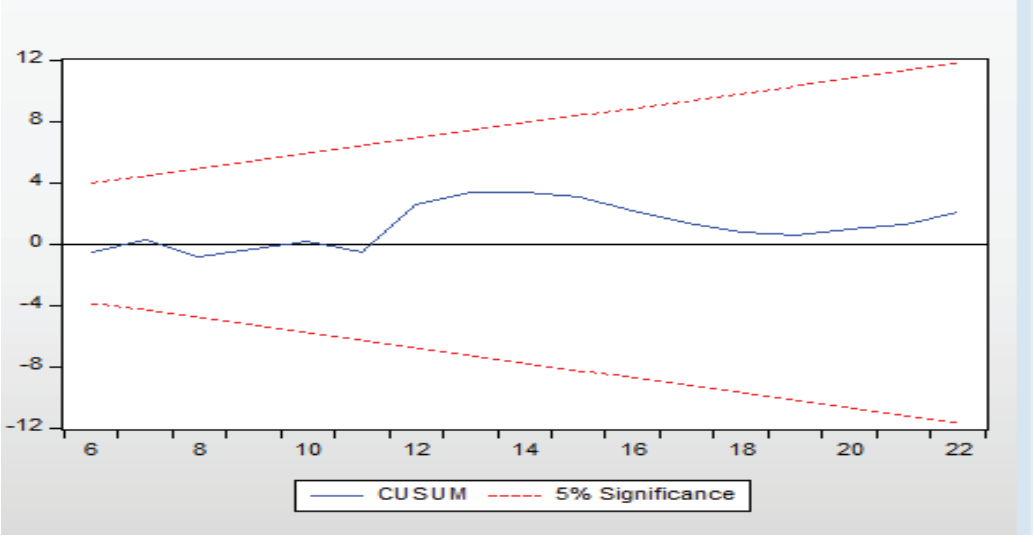
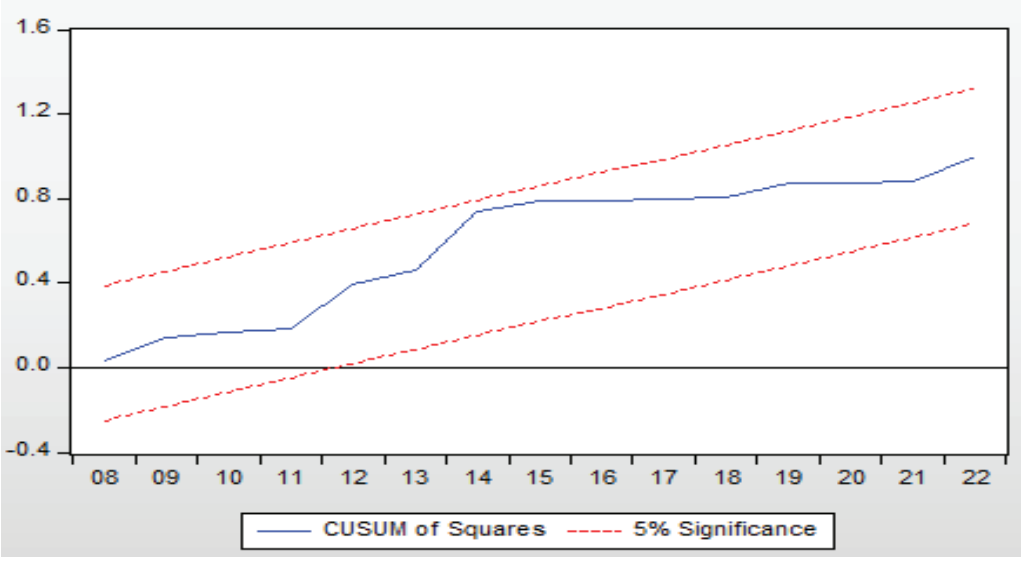


Figure 4 Plot of Cumulative Sum of Squares (CUSUM SQ) of Recursive Residuals



5. SUMMARY, CONCLUSION, AND RECOMMENDATIONS

This study was initiated to identify the empirical analysis of the effects of remittances on private consumption expenditure made by the household sector in Nepal by using an econometric tool – the ARDL Bounds Testing model. Empirical results are calculated by using the time series data covering the period of 2000/01 to 2021/22 i.e. 22 years. The empirical results show that there is a positive and significant relation between the inflow of remittances and household consumption in Nepal. Likewise, there is a positive and significant effect of GDP to boost private consumption in Nepal. However, there is a negative

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effect of the consumer price index on household consumption. The average price level rises due to an increase in CPI, and thus, it reduces the household consumption expenditure in Nepal.

Thus, this study concludes that remittance is a relatively more stable and predictable source of financial inflow than other sources. It reduces the short-term unemployment problem in the economy and contributes significantly to boosting consumption expenditure. In recent years, the inflow of remittances in Nepal has been around 25 percent of the GDP. So, the Nepalese economy is going to be remittance-based (Lamsal, 2015).

The findings of this study have some important policy implications. They are given below. The remittance income earned by workers of other SAARC nations, India, Bangladesh, and Pakistan is more than the income of Nepalese migrants. To solve this income gap, the Nepal government and concerned ministries and agencies should provide skill development training to Nepalese migrant workers to get better income in host countries.

The most common destinations for Nepalese migrants are Malaysia, Qatar, Saudi Arabia, South Korea, etc. To explore and identify new destinations, the government should play a proactive role in promoting foreign employment and explore and identify new destinations in emerging nations other than Malaysia and Gulf nations.

The money transfer cost from host countries to Nepal is more than the costs in other SAARC nations. Thus, the Nepal government should make better policies for encouraging them to send remittances only from formal banking channels which helps to overcome the liquidity crisis in the banking sector and foreign exchange shortage in the nation.

To increase the saving habit by reducing unnecessary expenses, attractive schemes and interest rates on deposits should be provided by the banking sectors for migrant workers.

Unnecessary and unproductive use of remittance income should be discouraged with attractive and high-yielding saving schemes. Efforts should be directed by the concerned authorities towards the productive use of remittances rather than using more remittances on the purchase of land, houses, jewelry, etc.

Efforts should be made by the Nepal government to explore and expand job opportunities in Nepal in the long -run. Nepal should not always depend upon foreign employment. It should make only short-term solutions for unemployment in Nepal but it should not permanent solution.

It is important to mention some key and available information even regarding the outflow of remittances from Nepal. Nepal government has no any systematic records about the outflow of remittances from Nepal to foreign countries. In this context, Bishowkarma (2023) writes that there are more than 20,000 foreign workers from 77 different countries legally working in Nepal with labor permission. Among them, most workers are from China followed by the United Kingdom, USA, Japan, Australia, Korea, and many other countries. They sent more

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than 75 percent income to their country of origin. Besides it, more than US $ 30,000 million in remittances outflow to India from Nepal from various informal sources. Nepal is hiring a large number of semi-skilled and unskilled workers for which a large amount of remittances are outflowed. It is a serious matter for the Nepalese economy and, thus, a new area of research for the upcoming researchers.

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REFERENCES

Anjum, A., Yasmeen, K. S. Ambreen, & S. Twakal. (2011). The impact of workers remittances on private investment and total consumption in Pakistan. *International Journal of Accounting and Financial Reporting, ISSN 1(1*), 2162 – 3082.

Aslam, & Sivarajasingham (2020). The inter-temporal relationship between workers remittances and consumption expenditure in Sri Lanka. *Journal of Economic and Administrative Science.*

Bishowkarma, M. (2023). The outflow of remittances from Nepal. *Naya Patrika National Daily.* Friday, 24th November, 2023.

Carlos, M., & Lina, C. (2010). The effects of remittances on household consumption, education attendance, and living standards: The case of Colombia. *Lecturas de Economia – No. 72. Medellin*.

Dahal, M. P. (2013). Does higher education affect total factor productivity in Nepal? As exploration through the lens of ARDL approach. *Economic Journal of Development Issues, 15 & 16 (1 & 2*), 76 – 102.

Dhungel, K. R. (2016). The causal relationship between remittance and economic growth: An Econometric approach. *Journal of Global Economics, Management and Business Research, 7(1),* UK, 31 – 40.

Dhungel, K. R. (2018). Estimation of import demand function using ARDL method: Evidence from Nepal. *International Journal of Econometrics and Financial Management, 6(2),*45 – 52.

Fayissa, B., & C. Nsiah (2010). The impact of remittances on economic growth and development in AFRICA. *The American Economist, 55(2).*

Ghimire, B. N. (2016). Remittance as a tool of economic development: Nepalese perspective. *Journal of Management and Development Economics, 5(1),* 29-38.

Javid, W. (2017). Impacts of remittance on consumption and investment (Case study of Punjab, Pakistan). *Journal of Finance and Economics*, *5(4),* 156 – 163, SCIEP.

Jongwanich, J. (2007). Workers remittances, economic growth and poverty in developing Asia and the Pacific countries. *UNESCAP Working Paper* (WP / 07 / 01).

Jorge N. V. G. (2004). Remittances and the household's expenditures on health in Mexico. *Journal of Business Strategies*, *26(1),* 120 – 140.

Kafle, L. (2020). Country wise inflow of remittances in Nepal. *The Rising Nepal Daily, Jan 28, 2020.*

Kaphle, R. R. (2018). Relationship between remittance and economic growth in Nepal, *Tribhuvan University Journal, 32(2)*, 249-266.

Kanel, N. R. (2016). Guidelines to format theses and dissertations: A quick reference. Kathmandu; *New Hira Book Enterprises, Kirtipur, Nepal*

Kothari, C R. (1990). *Research methodology: Methods and techniques,* Second Edition. New Delhi, Wishwa Prakashan, 11002, India

Lamsal, M. R. (2015). An analysis of foreign employment and inflow of remittance in Nepal. *Journal of Management and Development Economics, 4(1),* 61-70.

Lamsal, M. R. (2023). Effects of remittances on economic growth in Nepal. *Nepalese Journal of Management Science and Research (NJMSR),6(1),* 168-181.

Mamun, Al, & M. H. M. Kabir. (2023). The remittances, foreign direct investment, export and Economic Growth in Bangladesh: A Time Series Analysis. *ARAB ECONOMIC and BUSINESS JOURNAL*, *15,* 30 – 46.

Mannan, K. A., & L. J. Fredericks (2015). The new economics of labour migration (NELM): Econometric analysis of remittance from Italy to rural Bangladesh based on Kinship relation. *International Journal of Migration Research and Development (IJMRD),* 1(1), Summer 2015.

Meyer, D., & A. Shera (2016). The impact of remittance on economic growth: An econometric model. *Economics – 18*, 147 – 155.

Ministry of Finance (2021). Economic survey- *ministry of finance, Singhadarbar*, Kathmandu, Nepal.

Ministry of Labour, employment and social security (2020). *Nepal labour migration report* 2020. *GoN/ MoLESS*.

MOLESS (2020). *Nepal labour migration report 2020.* Ministry of Labour, Employment and Social Security, Government of Nepal.

Neupane, N. K. (2010). An Analysis of the impact of remittance on Nepalese economy. *A Thesis.* Central Department of Economics, TU, Kirtipur.

Olayungbo, D.O., & A. Quadri. (2019). Remittances, financial development and economic growth in Sub–Saharan African Countries: evidence from a PMG – ARDL approach. *Financial Innovation*.

Pant, D. (2017). An analysis of the determinants of remittances and effect of remittances on expenditure behaviour and child welfare in the household of Nepal. *A Dissertation.* School of Agriculture, Policy and Development, University of Reading.

Pesaran, M. H., & Y. Shin. (1999). An autoregressive distributed lag modeling approach to cointegration analysis, in *Econometrics and Economic Theory in the 20th Century*. The Ragner Frisch Centennial Symposium, Cambridge University Press.

Pesaran, M. H., Y. Shin, & R. J. Smith. (2001). Bounds testing approaches to the analysis of level relationship. *Journal of Applied Econometrics*, *16,* 289 – 326.

Pradhan, G., M. Upadhayay, & K. Upadhayaya. (2008). Remittance and economic growth in developing countries. *The European Journal of Development Research.*

https://doi.org/10.53056/njmsr-2024.7.1.001 *https://www.nepjol.info/index.php/njmsr/index*

Quisumbing, A. R., & McNiven, S. (2007). The impact of migration and remittances on assets, consumption and credit constraints in the Rural Philippines. *The Food and Agriculture Organization of the U. N. ESA Working Paper* No. 07 – 05 (September).

Sapkota, P. (2023). Effects of public debt on economic growth of Nepal. *The Lumbini Journal of Business and Economics, 11(1),* 343-362.

Shrestha, B. (2004). Foreign employment and remittance economy of Nepal: in *Nepalese Economy, Kathmandu Central Department of Economics (CEDECON), Tribhuvan University (T U)*, Kirtipur.

Siddiqui, O. I., M. Z. Haider, & T. Hossain. (2016). Impact of remittances on consumption and Savings Behavior in Rural Areas of Bangladesh. *Journal of Business*, *1(4*), September, 25 -35.

Sigdel, B. D. (2010). *Dimensions of Nepalese Economy.* Kathmandu, Human Actions for Rapid Development (HARD*),* Kathmandu Nepal, 110-129.

Snyder, S., & Wen, S. C. (2009). The impact of remittance income on rural households in China. *China Agricultural Economic Review*, *1(1*), 38 – 57.

Shukla, A. K. (2020). Estimating consumption, investment and export functions of Nepal. *Macroeconomic Modelling and Forecasting*. International University of Japan.

Uprety, D. (2017). The impact of remittances on economic growth in Nepal. *Journal of Development Innovation, 1(1),* 114-134.

Wolff, H.K., & P. R. Pant (2000). *A handbook for social science research and thesis writing (2nd edi)*. Kathmandu, Nepal. Buddha Academic Enterprises Pvt. Ltd.

World Bank. (2011). Large scale migration and remittances in Nepal: Issues, Challenges, and Opportunities; *Poverty reduction and economic management sector unit, South Asia Region, World Bank Group, Report No* 55390-NP.

World Bank. (2018). Migration and remittances – *Recent development and outlook.* World Bank, Washington D C.: World Bank

World Bank. (2021). *World bank data*. Washington D. C.: World Bank.