# Relationship between Remittances and Inflation in Nepal

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Lead Researcher, Research Centre for Development Studies, Kathmandu. Email: acsir21@gmail.com (corresponding author) Naveen Adhikari Assistant Professor, Central Department of Economics, Tribhuvan University, Nepal Email: nabueco@gmail.com Nawaraj Bista Legal Officer, Election Commission, Nepal Email: nawarajbist111@gmail.com

#### Abstract

<b>Cite this paper</b> Dahal, K., Chaudhary, A., Adhikari, N., & Bista, N. (2019). Relationship between remittances and inflation in Nepal. <i>The Journal of Development and</i> <i>Administrative Studies, 27</i> (1-2), 1-10. https://doi.org/10.3126/jodas.v27i1-2.60566	Empirical evidence highlights the significant impact of remittances on a country's macroeconomic indicators. This holds particular significance for import-dependent developing nations like Nepal, where remittances serve as a crucial source of foreign currency earnings and facilitate the financing of imports. However, there remains a limited understanding of their implications for inflation, as their effects on inflation are contingent upon whether the demand or supply side is more influenced by remittances. This study leverages time series data and employs an error correction model (ECM) to explore the influence of remittances on the domestic price level. The findings indicate that the inflow of remittances has a dampening effect on the domestic inflation rate. This suggests that remittances have played a pivotal role in enabling the import of relatively more affordable goods from abroad, notwithstanding their impact on the overall expenditure of the economy. Furthermore, our research reveals
	on the domestic inflation rate. This suggests that remittances have played a pivotal role in enabling the import of relatively more affordable goods from abroad, notwithstanding their impact on the overall expenditure of the economy. Furthermore, our research reveals that conventional macroeconomic indicators such as GDP, narrow money supply, and Indian inflation appear to exert pressure on domestic inflation in Nepal. These findings offer valuable insights into the complex relationship between remittances and inflation dynamics in the Nepalese context. <b>Keywords:</b> Remittance, Inflation, Financing, Money supply, Error Correction Model (ECM)

# 1. Introduction

Many Nepalese households have relied heavily on emigration to earn a living while seeking employment oversees. Due to the lack of domestic employment opportunities, foreign employment has become the primary focus. Statistically, 43,65,415 youths have migrated overseas for employment (excluding India). Among them, 1.5 percent is only fully skilled, 24.0 percent are semi-skilled, and 74.5 percent are unskilled. Institutionally, foreign employment has been made available in 110 countries. However, more than 167 countries have been individually opened to foreign employment. It is estimated that approximately 500,000 youths enter the Nepalese labor market annually (CBS, 2018), and the average age of immigrants is 29.8 years (Sharma et al., 2014). Thus, the issue of employing those who enter the labor market remains a challenge. With this exodus of Nepali labor force from the country, remittance has become the lifeline of the economy during the last two decades. For example, the country used to receive 1211.8 million USD in 2005, which has since increased to 8286.6 million USD, which is 24 percent of GDP in 2018 (MoF, 2018a). Accordingly, remittance has become a major source of foreign currency earnings in Nepal and, concurrently, a major source of financing its imports.

Remittances have the largest share of all forms of financing in Nepal, followed by revenue (excluding grants), official development assistance, and foreign direct investment (MoF, 2018b). At this point, the macroeconomic importance of remittances is more crucial than ever. It may influence foreign reserves, foreign exchange rate, money supply, balance of payment, and so forth. And one of the crucial areas of exploration is the association of remittances with inflation, as there are no clear mechanisms for how remittances affect the supply or demand side of the domestic economy. Thus, this study is pivotal to balancing internal and external economic stability.

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The relationship between remittances and inflation is complex and multifaceted. The prime studies suggest that remittances have a positive effect on the inflation rate. In 32 developing countries of Asia and the Pacific, a panel framework revealed only positive associations (Le Thanha et al., 2015). In Bangladesh, it generated inflationary pressures (Khan and Islam, 2013), with food prices becoming double those of other consumable goods (Roy and Rahman, 2014). In another study of 58 low-income, lower-middle-income, and lower-middle-income countries, it was observed that remittances have a negative impact on inflation in low-income and lower-middle-income groups, while they have a positive impact in the middle-income group (Khurshid et al., 2016). In a sample of 54 developing nations, Narayan, Narayan, and Mishra (2011) discovered that remittances cause inflation in both the short and long run. This relationship encompasses not only developing nations but also developed nations such as Mexico (Balderas, and Nath, 2008).

Domestically, increased labor migration raises remittance receipts. It has both pros and cons for the economy. It is an excellent mode of injection. On one hand, Nepalese households have more disposable income, which makes their lives easier by consuming less, saving more, and getting started. However, it regenerates the macro impact on trade openness, foreign reserve, exchange rate, and other indicators (Shrestha, 2004; Pant, 2006; Shrestha, 2008; Shrestha, 2009; NRB, 2016). On another hand, remittances utilization is significantly skewed toward import based consumption, mainly from India (MoICS, 2018). In contrast, Indian inflation has a positive impact on the Nepalese price level (Bhatta, 2013). For a few decades, Nepal's price level has been augmenting rapidly (Chaudhary & Xiumin, 2018).

Our findings from this study have significant contributions for policymakers. First, we reveal a connection between policy announcements and their results on the ground. The national employment policy and the foreign employment policy of Nepal are less effective on the ground. Second, the empirical results reveal that increasing personal remittances retards domestic prices. The findings are significant and stable both in the short run and long run. In South Asian studies, we have observed mixed results, but not in the case of Nepal. It provides a clear premise or a benchmark for policy reforms as well.

The remaining sections of the paper are organized as follows: The second part discusses the trend of remittances inflow in Nepal. The next part reveals the literature on the topic at hand. Next sectiondescribes research methodology. It contains data management and applied tools in this paper. The fifth part reveals the results and discussion. The last one provides the concluding remarks and policy implications.

# 2. Trend of Remittances in Nepal

Historically, labor migration began after the Anglo-Nepalese War (1814–1816). After the end of the war and the signing of the Treaty of Sugauli in 1816, a total of 4,650 Nepalese youths were recruited into the British armed forces as part of a British-Gurkha regiment. Since then, Nepalese migrants have traditionally been accepted in India. This is primarily due to geographical proximity, historical and cultural ties, and a large porous open border. The majority of these migrants are employed in the informal, private sector. In India, these migrants work as semi-skilled and unskilled laborers in restaurants, the tea gardens of Darjeeling and Asahm, and as domestic workers such as guards and maids in urban areas (Kunwer, 2019). Along with India, international labor migration has expanded to the Middle East and Gulf states at present (MoF, 2018). The trend of labor migration overseas, as shown in Figure 1, is augmenting rapidly. In 1993, only 3,605 people obtained work permits from the government of Nepal. In 2006, it was 139718 and reached 508828 in 2018 (MoF, 2018b; CBS, 2018). In Nepal, Shrestha (2017) points out that political instability—the Maoist insurgency (1996–2006)—is one of the prime factors driving international youth migration. In 2018, Nepal received more than USD 8 billion as personal remittances, which was around 0.2 billion in 1996 and 1.5 billion in 2006.

Hence, Nepal has been known as a remittance-led economy for the last two decades. Nepal is one of the top remittance recipient countries in the world, and the top in South Asia in terms of relative GDP measurement. Figure 2 shows a comparative study of the remittance recipient economies of the South Asia, including China too. During the early 1990s, Nepal's remittances to GDP ratio were low in comparison to other countries. After 2001, however, it became ebullient among all (China, India, Bangladesh, Pakistan, and Sri Lanka). This phenomenon is strongly associated with the facts in Figure 1. Thus, overseas youth migration is one of the best alternatives for employment opportunities for Nepalese youths and has become a leading source of financing today.



**Figure 1: Trend of Remittances Inflow** (Source: World Bank Open Database, 2019)





The Constitution of Nepal recognizes the right to employment and the right to work as fundamental rights (MoLJPA, 2015). According to the *Act on Right to Employment (2018)*, all local levels must have an Employment Service Center (ESC) to identify and list unemployed individuals who have been guaranteed at least 100 days of employment during the fiscal year (NLC, 2018). The Nepalese government has also implemented the *National Employment Policy (NEP) 2016* and the *Foreign Employment Policy (FEP) 2012*. Thisaims to: provide productive and output-oriented employment opportunities to all citizens; improve the quality of employment by transforming informal employment into formal employment; create suitable opportunities for preparing a knowledge and skill-based labor force under the needs of the labor market; manage emigrant and immigrant workers; give priority to the creation of employment opportunities for youths; and strive to increase the number of productive and output-oriented employment opportunities (MoLE, 2016).

FEP also aims to: find and promote employment opportunities on the international market; develop skilled human resources with the competitive capacity to maximize the benefits of migrants; make the process easy, clear, reliable, and safe, taking into account the needs of women; make sure there is good governance in foreign employment management; bring together local, national, and international resources for foreign employment management; encourage collaboration between ex-migrants and their home countries; and make sure that women are treated fairly.

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Nonetheless, migrant youths are neither skilled nor secure in the global labor market (CBS, 2018; Malla & Rosenbaum, 2017). Also, it is not utilized in human development or the productive sector as long as foreign policy is adhered to. The majority of remittances are used for commodity consumption. According to CBS (2011), 78.9 prcent of total remittances received go to daily consumption, while 7.1, 4.5, and 3.5 percent go to paying loans, property collection, and education expenditure, respectively. Moreover, only 2.4 percent of total remittances are utilized in start-ups or investment. Regarding this, Nepal's adopted policy becomes contentious here.

# 3. Literature Review

With the influx of remittances over the past few decades, interest in examining the relationship between remittances and macroeconomic indicators is growing. Particular to the objectives of this study, the literature suggests that there are different channels and mechanisms through which remittances could have an impact on domestic inflation. According to Naryan et al. (2011), the impact of remittances on inflation can be examined in three ways: exchange rate appreciation, increase in money supply, and balance of payments surplus .In line with the first channel, the model known as the Salter-Swan-Corden-Dorbbush considers that remittances could induce inflation through the appreciation of the real exchange rate due to the rising domestic prices contingent upon the country's exchange rate regime, namely a fixed and flexible exchange rate.

In a similar note, Reinhart and Rogoff (2004) argue that the exchange rate regime has particular implications for inflation. For example, the paper shows that an increase in remittances will shift the resources from the tradeable to the non-tradable sector, increasing inflation in a fixed exchange rate region. Under the flexible exchange rate region, it could have similar effects but with an appreciation of the exchange rate, thereby increasing the domestic price level. Regarding the second channel, when large amounts of foreign exchange are remitted by expatriates to their home countries, the conversion of this foreign exchange into domestic currency raises the money supply. If this is not absorbed into productive sectors (or capital investment), then it goes into consumption expenditure, fueling inflation. Remittances also boost real wealth, which stimulates consumption and expenditure. This creates short-run excess demand, which drives up the price level. Furthermore, remittances can also be a source of balance-of-payments surplus and international reserve accumulation. An increase in international reserves will lead to an increase in the monetary base. The exchange rate will continue to increase as a result of this. As a result, there will be upward price pressure (Ball, Lopez, & Reyes, 2013).

In addition to the above literature, which mainly discusses the theoretical considerations to examine the relationship between remittances and inflation, a number of empirical studies have also been conducted, especially on those countries that have experienced an influx of remittances during the last two decades. For example, Nisar and Tufail (2013) examined the remittance-inflation nexus in Pakistan and found that remittances, money supply, and real per capita GDP have a positive impact on inflation in Pakistan. On a similar note, the study by Iqbal et al. (2013) also concluded that remittances have fueled inflation in Pakistan. A study by Roy and Rahman (2014), using a vector error correction model, found that remittance has put inflationary pressure on Bangladesh, especially food inflation. A cross-country study byLe Thanhet al. (2015) that examined the association between remittances and inflation in Asia Pacific developing countries also showed a strong association between remittances and inflation.

While such literature exists, only limited literature is available in the Nepalese context. For example, remittances utilization is significantly skewed toward import based consumption, mainly from India (MoICS, 2018). Similarly, Nepalese inflation is significantly affected by Indian inflation (Bhatta, 2013). In this regard, the raised issue of this paper becomes pivotal and genuine.

# 4. Methodology

The issue of this paper is scrutinized under explanatory framework. It utilizes the time series database from 1975 - 2018, and is hired from secondary sources. First we test stationary of the each variable and then run ECM. In this investigation our model is as follows:

# CPI= f (CPII, RGDP, RM1, RREM)

(1)

The econometric model given in equation 1 can be written as:

 $LnCPI_t = \alpha_0 + \alpha_1 LnCPII_t + \alpha_2 LnRGDP_t + \alpha_3 LnRM1_t + \alpha_4 LnREM_t + \mu_t(2)$ 

Where,

LnCPI= natural log of the cconsumerprice index of Nepal ( $CPI_{2015} = 100$ ),

LnCPII = natural log of the consumer price index of India (CPII<sub>2015</sub> = 100),

LnRGDP = natural log of real gross domestic product,

LnRM1 = natural log of real narrow money supply,

LnREM = natural log of real remittance received,

 $\alpha_0 = \text{intercept},$ 

 $\alpha_i = i^{th}$  coefficients,

 $\mu$  = error term, and t= 1975 to 2018.

The study ahead starts with an asymptotic properties check and a stationary test of the time series data. For this, we apply the Augmented Dicky Fuller (ADF) test, and then the Engel-Granger co-integration test is used to find out the short-run and long-run functional relationship between remittances and inflation in Nepal. Let's choose the stationary process of a variable, LCPI, as follows:

$$\Delta LnCPI_{t} = \alpha_{1} + \gamma_{1}LnCPI_{t-1} + \sum_{i=1}^{K} C_{1i}\Delta LnCPI_{t-1} + \varepsilon_{1t} \text{ and}$$

$$\Delta LnCPI_{t} = \alpha_{2} + \gamma_{2}LnCPI_{t-1} + \sum_{i=1}^{k} C_{2i}\Delta LnCPI_{t-1} + \epsilon_{2t}$$

Where,  $H_0$ :  $\gamma_i = 0$ , against the  $H_1 \gamma_i < 0$ . Rejection of the null hypothesis is an indication that the series  $\vec{fd}_t$  is stationary (Wooldridge, 2012). The EG test can be used if all of the variables are stationary at the first difference, I(1).

Moreover, the EG test transformation of equation 1 can be further processed in a two-step approach. First, the confirmation of I (1) of all variables. Second, the estimated residual from equation 2 obtained and I(0) of claims cointegration among the variables should be stationary at level. Similarly, the Error Correction Model (ECM) can be obtained from the following transformation of our prime equation 2:

$$\Delta \text{LnCPI}_{t} = \propto_{0} + \sum_{i=0}^{n} \beta_{1i} \Delta \text{LnCPI}_{t-i} + \sum_{i=0}^{n} \beta_{2i} \Delta \text{LnCPII}_{t-i} + \sum_{i=0}^{n} \beta_{3i} \Delta \text{LnRGDP}_{t-i} + \sum_{i=0}^{n} \beta_{4i} \Delta \text{LnRM1}_{t-i} + \sum_{i=0}^{n} \beta_{4i} \Delta \text{LnCPII}_{t-i} + \sum_{i=0}^{n} \beta_{5i} \Delta \text{LnREM}_{t-i} + \gamma \text{ECM}_{t-1} + \mu_{t}(3)$$

Where,  $\beta_i$  = coefficients of the lagged first difference variables.  $\gamma$  is the speed of adjustment parameters of ECM and shows the dynamics of the model. The positive value of  $\gamma$  indicates divergence and the negative value shows convergence.

In this entire estimation, data are quantitative in nature and sourced from valid institutions. For example, Consumer price index (CPI), money supply, and remittance have been collected from the *Quarterly Economic Bulletin* published by the Nepal Rastra Bank (NRB). Similarly, GDP and GDP deflator data are compiled from various issues of the Nepal Ministry of Finance's Economic Survey. The Indian CPI is collected from the World Bank database.

# 5. Results and Discussion

The result of the Augmented Dickey-Fuller (ADF) test, as given in Table 1, shows that all the variables are integrated at I(1). Hence, the Engle-Granger co-integration test is valid to proceed with further operations.

The estimated long-run model is as follows:

Variables	Level		First Difference		Order of Integration
	Intercept	Intercept & Trend	Intercept	Intercept & Trend	
LnCPI	-0.372	-1.446	-4.993*	-5.057*	I(1)
	[.904]	[.830]	[.0002]	[.0011]	
LnCPII	-0.906	-1.750	-6.388*	-6.191*	I(1)
	[.775]	[.708]	[.000]	[.000]	
LnRGDP	-0.193	-1.398	-5.890*	-5.729*	I(1)
	[.931]	[.845]	[.000]	[.0002]	
LnRM1	-2.631	2.412	-5.186*	-6.133*	I(1)
	[.096]	[1.00]	[.0001]	[.0001]	
LnRREM	-0.101	-2.078	-8.387*	-8.484*	I(1)
	[.942]	[.542]	[.000]	[.000]	

### **Table 1: ADF Test Results**

Source: Authors' calculation

\* shows 1% level of significance

Here in equation 4, the coefficient of LnCPII is positive and statistically significant at the 1 percent level of significance. Similarly, the coefficient values of both LnRGDP and LnRM1 are positive and statistically significant at the 5 percent level of significance. This implies that Indian inflation, income (LnRGDP), and narrows money supply all have a positive effect and are statistically significant. Unlike LnCPII, LnRGDP, and LnRM1, the coefficient value of LnRREM is negative and statistically significant at the 1 percent level of significance. This implies that, in the long run, there exists a negative, yet significant, relationship between remittances and inflation in Nepal.

Table 2. Chit Root Test of the Residual of Equation 4			
	Intercept	Intercept & Trend	Order of Integration
μ	-5.398	-5.32	I(0)
	[.0001]	[.005]	

# Table 2: Unit Root Test of the Residual of Equation 4

# Source: Authors' calculation

Here in Table 2, the residual series is stationary at level, both in the intercept and intercept and trend form, at 1 percent level of significance. Because unit root tests of the residual series are stationary at the level, we can use the Engel-Granger co-integration test for the given model, and OLS regression would explain the long-run relationship between the model's dependent and independent variables.

This long-run inflation function shows that Indian inflation, narrow money supply (RM1), and real GDP (RGDP) are found to affect Nepalese inflation positively, whereas real remittance (RREM) affects inflation negatively. In the long run, for instance, a 1 percent raises in Indian inflation causes a 0.83 percent rise in Nepalese inflation. Unlike other explanatory variables, 1 percent increases in remittance causes a 0.04 percent decline in inflation in Nepal in the long run.

Nepal has long had strong trade relations with India. India is both Nepal's major exporting and importing country. Out of its total imports, Nepal imports two-thirds of the tradable goods from India. The major imports from India include petroleum products, classified manufactured goods, machinery, and transport equipment, food and live animals, chemicals and drugs, crude materials, and other manufactured articles (NRB, 2016). So, the inflation rate in Nepal is largely affected by Indian prices (inflation). Indian prices are an external source of inflation in Nepal.

When national income increases, then aggregate demand (AD) for goods and services also increases. An increase in aggregate demand (AD), and aggregate supply (AS) remaining constant creates a demand-supply gap, called an "inflationary gap," which also causes inflation in the economy. So, in the long run, when the economy is at full employment, real GDP causes inflation in the economy.

The modern quantity theory of money states that inflation occurs when the growth rate of the money supply exceeds the growth rate of real aggregate output in the economy. For most of the study period of this research, the growth rate of the narrow money supply exceeded the growth rate of the real output of the economy. As a result, a narrow money supply (RM1) has a positive relationship with inflation in Nepal.

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The remittance, the variable of interest in this research, is found to be statistically significant and negative. This suggests that the remittance inflow has helped decelerate inflation instead of increasing it. This empirical result can be satisfactorily explained with the theoretical openness-inflation relationship, as provided by Romer (1993), and the empirical remittance-import relationship in Nepal, as provided by Bhatta (2013). Romer (1993) argues that, in small developing countries, there is a statistically significant, quantitatively large, and robust negative relationship between inflation and openness. The empirical study conducted by Bhatta (2013) showed that there is a long-run positive unidirectional causality from remittance to import, implying that remittance causes merchandise imports to increase in the Nepalese economy. In Nepal, remittance income has been mostly spent on the import of goods from abroad, either for daily consumption or for luxury and durable goods. So, remittances have increased Nepal's imports. As a result, remittances have decelerated Nepal's inflation, despite Nepal being a small developing country with more import openness.

Most of the remittance income in Nepal has been used for importing goods from the rest of the world. Nepal is one of the mostimport-liberalized countries in the world. The share of imports is larger in Nepal's total trade volume, and its size is large. For instance, in 2015, the import/GDP ratio was 36.5 percent. So, remittance income has been used to import goods from abroad, and imported goods have a lower price level in the domestic market. As a result, the inflow of remittances decreases the rate of inflation in Nepal by facilitating higher imports from abroad.

However, this negative remittance-inflation relationship in the case of Nepal contradicts the findings of empirical studies conducted by Narayan, Narayan, and Mishra (2011), Iqbal et al. (2013), Islam and Khan (2013), Roy and Rahman (2014), and Maskey et al. (2015). Those studies show a positive relationship between remittances and inflation.

Table 3: Short Kun Dynamics (ECM)				
Dependent Variable: △LnCPI				
Regressors	Coefficient	Std. Error	t-statistic	P-value
Constant	0.042	0.011	3.726	0.001
<b>∆</b> LnCPII	0.688	0.096	7.181	0.000
∆LnRGDP	-0.171	0.166	-1.031	0.310
<b>∆</b> LnRM1	-0.029	0.066	-0.436	0.665
∆LnRRE M	-0.023	0.008	-2.891	0.007
ECT <sub>t-1</sub>	-0.647	0.143	-4.52	0.0001
$R^2 = 0.72$ ; Adjusted $R^2 = 0.68$				

#### Table 2. Chart D -- D-mamilas (ECM)

Source: Authors' calculation

Here, from above Table 3, the estimated short-run inflation function can be expressed as: The coefficient value of the co-integrating equation (ECT<sub>t-1</sub>) must be negative and statistically significant for the model to be good. Here, the error correction coefficient (ECT) is negative (-0.647), as required, and significant at the 1 percent level of significance. The ECM value suggests that there is a quick adjustment in the inflation of Nepal when Indian inflation, RM1, and RREM change. The co-integrating equation value of the above equation suggests that the system can get back to equilibrium (adjustment) at a speed of 64.7 percent.

The above co-integrating equation suggests that in the short run, the CPI of Nepal is affected only by the CPI of India and remittances. In the short run, Indian inflation affects Nepalese inflation positively, and remittance inflows negatively. In the short run, real GDP and a tight money supply have not affected inflation. In the short run, inflation in Nepal is a function of Indian inflation. Nepal has strong trade ties with India. Out of its total imports, Nepal imports two-thirds of its goods from India. So, when inflation occurs in India, then it is immediately imported to Nepal along with the imported goods.

A rise in the money supply, according to the modern quantity theory of money, affects the price level only in the long run, not in the short run. So, it is theoretically obvious for a narrow money supply to have a statistically insignificant relationship with inflation. In the short run, too, Nepal is the most liberalized country in the world. Its imports from the rest of the world are rising day by day, whereas exports are declining with its total share in trade. So, the remittance received is used to import goods from abroad. When goods are imported from abroad, the aggregate supply of goods in the domestic market increases, which lessens the inflationary gap and, as a result, lowers the inflation rate of the domestic economy.

Variable	Model 1	Model 2	Model 3	Model 4
Constant	.08336776***	.084634***	.03797421***	.0397***
<b>∆</b> LnRREM	02462**	02491*	023487***	0229***
<b>∆</b> LnRGDP		027249	13023	13736094
<b>∆</b> LnCPII			.7034638***	.705385***
<mark>∆Ln</mark> RM1				02501452
ECT(-1)	722187***	72***	666714***	6495***
AIC	-149.2457	-147.2577	-182.48	-180.644
R-squared value	.25112859	.25135934	.71176947	.71295741

**Table 4: Model Comparison** 

Source: Authors' calculation

Note: \* indicates 1% level of significance, \*\* indicates 5% level of significance, and \*\*\* indicates 10% level of significance.

To check the consistency of the estimated coefficient of remittance, different models have been estimated and reported in Table 4. The rationale is to confirm that the coefficient of remittance, which is of interest in the research, is not subject to erratic changes with the choice of a particular model. The first model shows the relationship between the price index and remittance, while subsequent models report with the addition of explanatory variables such as real GDP, the Indian price index, and narrow money supply. The  $ECT_{t-1}$  term is negative and statistically significant for all models. For all models, the coefficient value of the natural log of remittance is negative but statistically significant. This implies that the inflation model of this research study is stable and consistent. However, the AIC criterion suggests that Model 3 is the best fit and Model 4 is the second-best fit. Similarly, the R-squared value suggests that the explanatory variables of model 4 explain the most variation in the dependent variable (LnCPI) in the short run. In this way, this model comparison provides evidence that the model specification of this research study is a good fit.

# 6. Conclusion and Policy Implications

Nepal has become one of the world's largest remittance recipient countries in recent decades. While the role of remittances in smoothing consumption expenditure by the elderly is acknowledged, little is explored in relation to their association with inflation. Increasing remittances soothed the country on one side but may induce inflationary pressure in the country, which became another concern. Hence, this study endeavors to determine the linear relationship between remittances and the domestic inflation rate under the Engle-Granger co-integration technique.

The findings of this paper reveal that the remittances inflow in Nepal retards inflationary pressure both in the short run and the long run. Also, it concludes that most of the remittances are spent on import-led consumption. In this situation, increasing imports induce an aggregate supply in the domestic market, which downsizes the domestic inflationary pressures. In the investigation, the Indian price level, domestic income, and narrow money supply are positives for the domestic inflation rate. The Indian price level is positively related to the Nepalese price level, implying that Nepal not only imports goods and services from India but also absorbs the Indian price effect. Remittances boost Nepal's expendable income level during this process.

In a nutshell, remittance income has no negative effect on Nepal's price level. Consequently, there is no perceived threat to domestic prices as a whole. However, its largest portion went toward consumption expenditures, which became a major issue in Nepal. It should be utilized toward start-ups, employment levels, and output.

# **Conflicting Interest**

Authors declare no any conflicting interest.

# References

Balderas, U. J., & Nath, H. K. (2008). Inflation and relative price variability in Mexico: the role of remittances. Applied Economics Letters, 15(3), 181-185.

Ball, C. P., Lopez, C., & Reyes, J. (2013). Remittances, inflation, and exchange rate regimes in small open economies 1. The World Economy, 36(4), 487-507

- Bhatta, G. R. (2013). Remittance and trade deficit nexus in Nepal: A VECM approach. *Economic Review*, 25(1), 37-50.
- CBS (2011). Nepal living standards survey 2010/11: Statistical volume two. Central Burau of Statistics, National Planning Commission of Nepal.
- CBS (2018). Report on the Nepal labour force survey 2017/2018. Central Bureau of Statistics, Government of Nepal.
- Chaudhary, S. K., & Xiumin, L. (2018). Analysis of the determinants of inflation in Nepal. American Journal of Economics, 8(5), 209-212.
- Iqbal, J. N., Nosheen, M., & Javed, A. (2013). The Nexus between Foreign remittance and Inflation: Evidence from Pakistan. *Pakistan Journal of Social Sciences*, 33(2), 331-342.
- Islam, S., & Khan, Z. S. (2013). The effects of rremittance on inflation: Evidence from Bangladesh. Journal of Economics and Business Research, 19(2), 198-208.
- Khan, Z. S., & Islam, S. (2013). The effects of remittances on inflation: Evidence from Bangladesh. *Journal of Economics and Business Research*, 19(2), 198-208.
- Khurshid, A., Kedong, Y., Calin, A. C., & Popovici, O. C. (2016). Do remittances hurt domestic prices? New evidence from low, lower-middle, and middle–incomegroups. *ESPERA*, 19(4), 94-114.
- Kunwer, L. S. (2019). Foreign labour migration, economic growth and remittances in Nepal. *Patan Pragya*, 5(1), 122-132.
- Le Thanh, T. U. N. G., LY, P. T. M., NHU, P. T. Q., Thanh, P. T., Le Tuan, A. N. H., & Phung, T. T. P. (2015). The impact of remittance inflows on inflation: Evidence in Asian and the Pacific developing countries. *Journal of Applied Economic Sciences*, 10(7), 37-51.
- Malla, B., & Rosenbaum, M. S. (2017). Understanding Nepalese labor migration to Gulf countries. Journal of Poverty, 21(5), 411-433.
- Maskey, N. M., Steinkamp, S., & Westermann, F. (2015). The impact of remittance on central bank balance sheets and inflation in Nepal. NRB Economic Review, 27(2),1-18.
- MoF (2018a). Economic survey. Kathmandu: Ministry of Finance, Government of Nepal.
- MoF (2018b). Development cooperation report FY 2017/18. Ministry of Finance, the government of Nepal. https://mof.gov.np/uploads/document/file/full\_dcr\_1718\_20190116085612\_20190724054335.pdf
- MoICS (2018). Import and export data. Trade and Export Promotion Centre, Ministry of Industry and Commerce and supplies, Nepal. http://www.tepc.gov.np/
- MoLE (2014). Foreign employment policy 2068. Kathmandu: Ministry of Labour and Employment, Government of Nepal.
- MoLE (2016). *National employment policy 2071*. Kathmandu: Ministry of Labour and Employment, Government of Nepal.
- MoLJPA (2015). *The constitution of Nepal*. Kathmandu: Ministry of Law, Justice, and Parliamentary Affairs, Government of Nepal.
- Narayan, P. K., Narayan, S., & Mishra, S. (2011). Do remittances induce inflation: Fresh evidence from developing countries. Southern Economic Journal, 77(4), 914-933.
- Nisar, A., & Tufail, S. (2013). An analysis of relationship between remittances and inflation in Pakistan. Zagreb International Review of Economics & Business, 16(2), 19-38.
- NLC (2018). The right to employment act, 2075. Kathmandu: Nepal Law Commission.
- NRB. (2016). Quarterly economic bulletin. Kathmandu: Nepal Rastra Bank.
- Pant, B. (2006). Remittance inflows to Nepal: Economic impact and policy options. Economic Review, 18(2), 20-35.
- Reinhart, C. M., & Rogoff, K. S. (2004). The modern history of exchange rate arrangements: a reinterpretation. *The Quarterly Journal of economics*, *119*(1), 1-48.
- Romar, D. (1993). Openness and inflation: Theory and evidence. *The Quarterly Journal of Economics*, 108(4), 869-903.
- Roy, R., & Rahman, M. (2014). An empirical analysis of remittance-inflation relationship in Bangladesh: postfloating exchange rate scenario. MPRA Paper No. 55190. https://mpra.ub.uni-muenchen.de/55190/
- Sharma, S., Pandey, S., Pathak, D., & Sijapati-Basnett, B. (2014). *State of migration in Nepal*. Kathmandu: Centre for the Study of Labour and Mobility.

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- Shrestha, B. (2004). Foreign employment and remittance economy of Nepal. In M. K. Dahal (Ed.) *Nepalese* economy: Towards building a strong economic nation-state. Kathmandu: Tribhuvan University.
- Shrestha, B. (2008). Contribution of foreign employment and remittances to the Nepalese economy. *Economic Review*, 20, 1-15.
- Shrestha, M. (2017). Push and pull: A study of international migration from Nepal. World Bank Policy Research Working Paper, (7965).

Shrestha, P. (2009). Foreign employment and remittance in Nepal. The Economic Journal of Nepal, 32(1) 46-60.

Wooldridge, J. M. (2012). Introductory econometrics: a modern approach (upper level economics titles). *Southwestern College Publishing, Nashville, TATN, 41*, 673-690.