

# Unraveling the Effect of Remittance on Nepal's Agricultural GDP

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## Abstract

The objective of this study is to analyze the impact of remittance on Nepal's agricultural GDP. It employed a causal-comparative research design to analyze the impact of remittance on Nepal's agricultural GDP based on panel data covering the periods from 2000 to 2022. Remittances play a major role in Nepal's economy, contributing significantly to its overall growth. Nepal is ranked fifth in the world when it comes to remittance as of percentage of GDP is 26.6 percent in 2023. The coefficient for remittance to GDP was  $-0.571$ , with a significant value of  $t = -5.766$  ( $p < 0.001$ ), indicating that remittances had a negative impact on the contribution of agriculture, forestry, and fishing to GDP. These findings show that an increase in remittance leads to a significant and consistent reduction in the proportion of GDP attributed to agriculture, forestry, and fishing. The remittance is the result of labour migration to the international labour market. If this trend continues, then Nepal is bound to face the acute shortage of labour in the near future and thereby reducing the use of arable land. This critical fact should also be taken into consideration by the Government authority and policymakers.

**Keywords:** migrants, international, labour market, economic development, consumption

## Introduction

According to the International Monetary Fund (2009), remittance refers to the proportion of household income sent by individuals through their earnings from foreign economies, which results mainly from their temporary or permanent migration to these economies. Remittance plays an important role in the economy of many countries, especially developing countries, as it is a major source of foreign currency.

Ekanayake and Moslares (2020) argue that remittances play an important role in the global economy and are a major source of income for developing countries. It significantly contributes to the economic growth of recipient countries through investment opportunities, increased consumption, and reducing poverty. The study finds that remittances have a positive effect on long-run economic growth in the majority of the countries studied, although their short-term effects are mixed.

Nepal (2020) states remittances in Nepal have a longstanding history, dating back to the early 19th century when Gurkha were recruited in the British Army. According to Williams (2020) the modern increase the remittance inflows began in the early 1990s aligning with the rise of labor migration opportunities in the Gulf countries, Malaysia, and

India. The study underscored the influence of geopolitical and economic factors in driving this increase. Adhikari (2023) revealed that Nepal's economic landscape has observed a transformative shift over the past few decades with remittances emerging as a crucial component of its Gross Domestic Product (GDP). Khanal (2020) revealed that when people move to another country and remittance money to their country, it can help reduce poverty by utilizing remittance in the country's economic development.

Lie et al. (2020) revealed that agriculture plays a significant role in mitigating rural poverty over in the long term, while remittances are found to be more effective in reducing poverty in the short term. The result of this study proves empirical evidence that supports the existence of correlations between agriculture, remittance, and rural poverty, highlighting the interconnections of these variables.

Salike (2022) revealed that remittance helps reduce poverty by 5.3 percent, but it also makes the gap between the rich and poor wider by 7.37 percent. Remittance helps reduce inequality for those who receive it. According to the World Bank (2023), remittances now account for more than 21 percent of GDP in several countries ranging from Tajikistan, Tonga, Samoa, Lebanon, Nicaragua, Nepal, Gambia, Honduras, El Salvador, Lesotho, Comoros and Kyrgyz Republic.

Ratha et al. (2023) reported that there were approximately 281 million international migrants, in 2020, or 3.6 % of the world population. The total number of global migrants has increased over the past five decades. Remittances to low and middle-income countries reached \$647 billion, and it is forecast to grow to \$656 billion in 2023, although growth is expected to show to 1.4 percent. Global remittance flows are expected to reach \$840 billion in 2023. Among LMICs, the top five recipients of remittances in 2023 were India \$ 125 billion, Mexico \$ 67 billion, China \$ 50 billion, the Philippines \$40 and Egypt \$ 24 billion. Nepal was ranked 19th among remittance-receiving countries with the highest remittance shares, remittances contributed 26.6 percent of GDP. The objective of this study is to analyze the effect of remittance on Nepal's agricultural GDP. Studying the effect of remittance on Nepal's economy is not only academically significant but also holds practical implications for policy formulation and economic development. By analyzing these dynamics, this study aims to contribute to a deeper understanding of how remittances can be leveraged as a facilitator for sustainable economic growth in Nepal's agricultural GDP.

### **Literature Review**

Seddon et al. (2002) suggest that Nepal should address its balance of payments, as remittances from abroad are not evenly distributed, leading to inequality among regions and social groups. Koechlin and Leon (2007) found that remittances had a negative effect on income distribution by increasing inequality.

Aggarwal et al. (2011), Acharya (2017), Dhungel (2018), Karki (2020), Ojha (2019), Poudyal and Bhaskar (2020) and Uprety (2017), found that remittance can significantly contribute to the country's economic growth by increasing household consumption and investment in small businesses. Other research Atamanov and Vab den Berg (2012) migration had a significant negative effect on agricultural income, but only for permanent migrants in the Kyrgyz Republic.

Ogunleve et al. (2013) showed that remittance had a positive effect on agricultural productivity in Nigeria. According to Tuladhar (2014) found migration had a negative impact on agriculture yield. The receipt of remittance does not contribute to improving agricultural productivity either. The primary reason for the reduced agricultural yield is the shortage of labor caused by migration. Pandit et al. (2014) conducted study showing that remittance had a positive effect on agricultural technology adoption in Nepal. Dahal (2014) observed that the increase in remittances in Nepal significantly contributed to the country's economic development and human capital accumulation. However, it seems to have a negative association with international trade. While Bohme (2015) found that the money back home by migrants had a positive effect on accumulated agriculture assets but not on livestock capital.

Akozelle et al. (2017), Faruk and Abdullahi (2022), Ghimire et al. (2021), Isere and Ehighebolo (2023), Khanal et al. (2015), Maharjan et al. (2013), Piras et al. (2018), Raju et al. (2014), and Rozelle et al. (1999) conducted studies that showed that remittance had a positive impact on the overall economic well-being of rural households. However, it may also have a negative effect on agricultural productivity.

Dulal (2018) found that the money sent back home by migrants had a nonsignificant effect on agricultural inputs and livestock. In the Kingdom of Saudi Arabia, UAE, and other Gulf and European countries. Ali et al. (2018) found that remittance had a significant and positive effect on agricultural GDP in long run, but it was insignificant in the short run. However, the study also revealed that remittance had a negative and significant effect on agricultural GDP in long run but was not significant in the short run in advanced countries such as advanced countries as USA, Canada and Australia. Mudassar et al. (2018) found that an increase in remittances was linked to a corresponding improvement in agricultural development in least-developed countries (LDCs). The outcomes suggest that remittances play a critical role in expanding the agricultural sector in these countries.

Abduvaliev and Bustillo (2020) assessed that remittances helped reduce poverty providing a steady income and stabilizing spending patterns. Kapri and Ghirime (2020) showed that remittance played a significant role in boosting agricultural productivity in Nepal. Meanwhile, Chhetri et al. (2020) discovered an insignificant relationship between remittance income and agricultural land growth, however, they found that remittances had several positive impacts on Nepal's economy such as reducing poverty and unemployment, maintaining foreign exchange reserves, and improving the balance of payments. Furthermore, the study revealed that there was a positive and significant correlation between GDP and remittance relative to GDP while the share of agriculture, forestry, and fisheries has a negative and significant correlation. This implies that the share of agriculture, forestry, and fishing in the country's GDP is decreasing, while the share of remittance relative to GDP is increasing.

Sikander et al. (2021) underscored that as the value of remittance increases, it may signal a concerning trend of labor departing from domestic agriculture. This exodus could potentially lead to a decrease in production capacity, thereby exacerbating poverty levels. Dhakal and Paudel (2023) stated that remittance was a significant source of income and had a positive association with GDP, trade deficit, final consumption expenditure, and gross capital

formation. However, there was a negative correlation between remittance and agricultural GDP and a low positive association with inflation. The study suggests that the limited use of remittances in the productive sector may have negative impacts on the long-run economic welfare and sustainability of the country. Chandio et al. (2023) found that the money sent back home by migrants had a significant positive impact on agricultural productivity. This study emphasized the crucial role remittance played in improving overall agricultural output. Ali et al. (2023) revealed that remittances led to a reduction in the production of both labor and capital-intensive crops, signaling a decline in overall farm activity attributed to a shortage of workers in the agriculture sector. According to Amuedo-Dorantes and Pozo (2023), remittance can bring several benefits, including better health education, access to technology, and support for small businesses. It can also help reduce poverty and inequality. However, it can also have a negative effect on the environment and promote crime. Unraveling the effect of remittance on Nepal's agriculture GDP has not been conducted in the context of Nepal. Therefore, this study justifies pivotal work in the research with the unraveling the effect of remittance on Nepal's agriculture GDP in the context of Nepal. Realizing the gap, this study examined the effect of remittance on Nepal's agricultural GDP lies in understanding how this significant impact on Nepali's economy. Based on these studies, the study assumes the following hypotheses:

H<sub>0</sub>: Remittances do not significantly impact Nepal's agricultural GDP.

H<sub>1</sub>: Remittances do significant impact on Nepali's agricultural GDP.

### **Data and Methods**

This study employed a causal-comparative research design to analyze the impact of remittance on Nepal's agricultural GDP based on panel data covering the periods from 2000 to 2022. Such quantitative data were sourced mainly from the World Bank, World Development Indicators 2023. The study applied regression analysis to empirically estimate the relationships between remittances and agriculture to GDP in Nepal. The data were analyzed, using the statistical package for the social sciences (SPSS). Therefore, descriptive statistics were employed to present the data through percentages and ratios. Additionally, the independent t-test was employed to validate the research hypotheses and interpret the results obtained from regression.

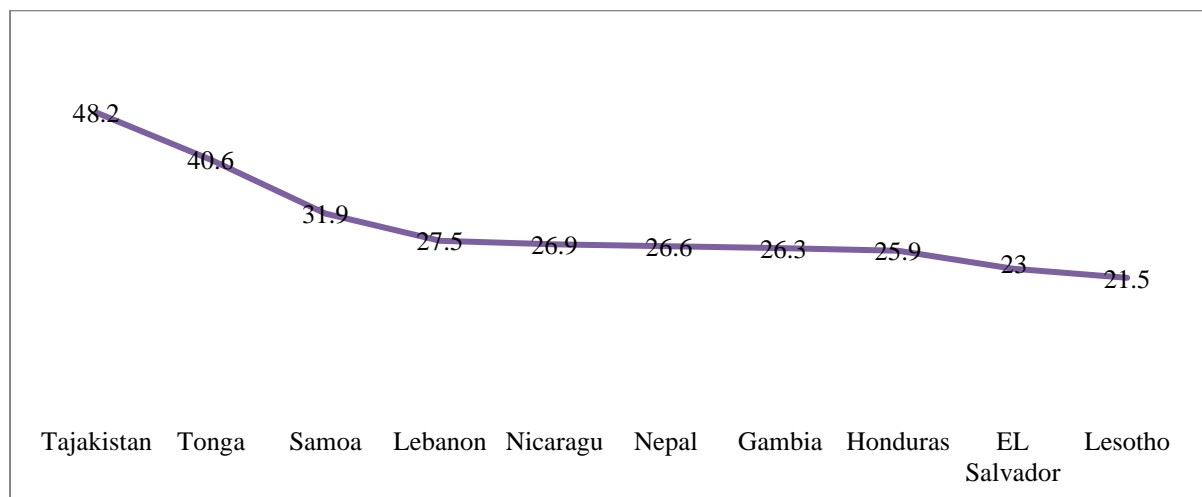
### **Result and Discussion**

The data presents the remittance to GDP ratios for several countries, shedding light on the substantial economic impact of funds sent by individuals working abroad. Tajikistan leads the group with a remarkable ratio of 48.2%, indicating that nearly half of its GDP is contributed by remittances. Tonga closely follows with a ratio of 40.6%, emphasizing the significance of foreign remittances in shaping its economic landscape. Samoa, Lebanon, and Nicaragua also exhibit notable ratios of 31.9%, 27.5%, and 26.9%, respectively, underscoring the economic importance of remittance inflows. Nepal, with a ratio of 26.6%, showcases the considerable role remittances play in contributing to its GDP. Gambia, Honduras, El Salvador, and Lesotho follow suit, each demonstrating a reliance on external funds, with ratios ranging from 26.3% to 21.5%. Remittances play a major role in Nepal's economy, contributing significantly to its overall growth. Nepal is ranked fifth in the world when it

comes to the percentage of remittances to GDP, with a remittance-to-GDP ratio of 26.6 Percent (Figure 1).

**Figure 1**

*Top Ten Remittance Recipient Countries in All Over the World in 2023 (% of GDP)*

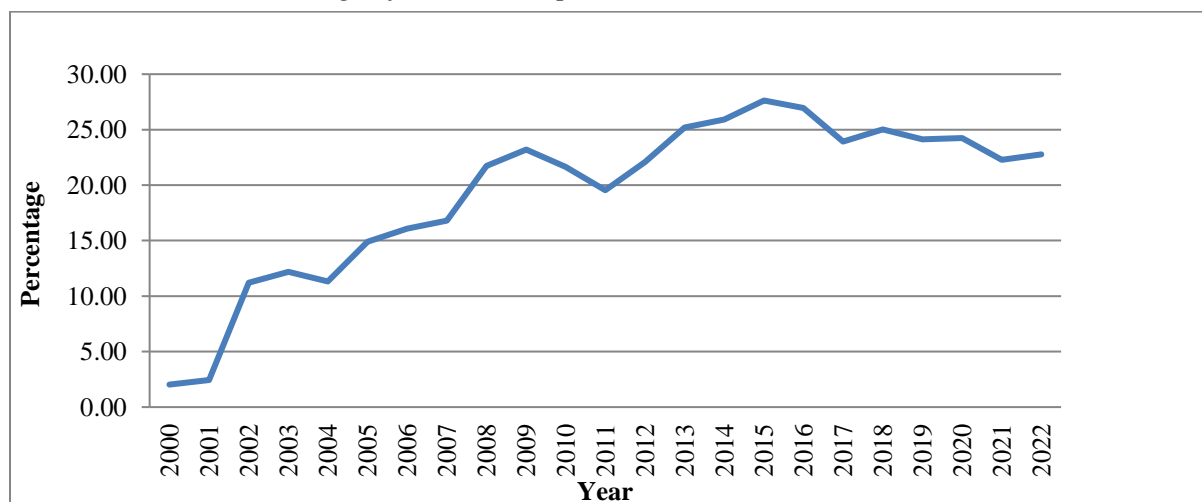


Note. World Bank, 2023.

Despite some fluctuations, the data reflects a level of stability in the proportion of remittances to GDP, indicating a consistent contribution to the country's economic landscape (Figure 2).

**Figure 2**

*Remittance as a Percentage of GDP in Nepal*

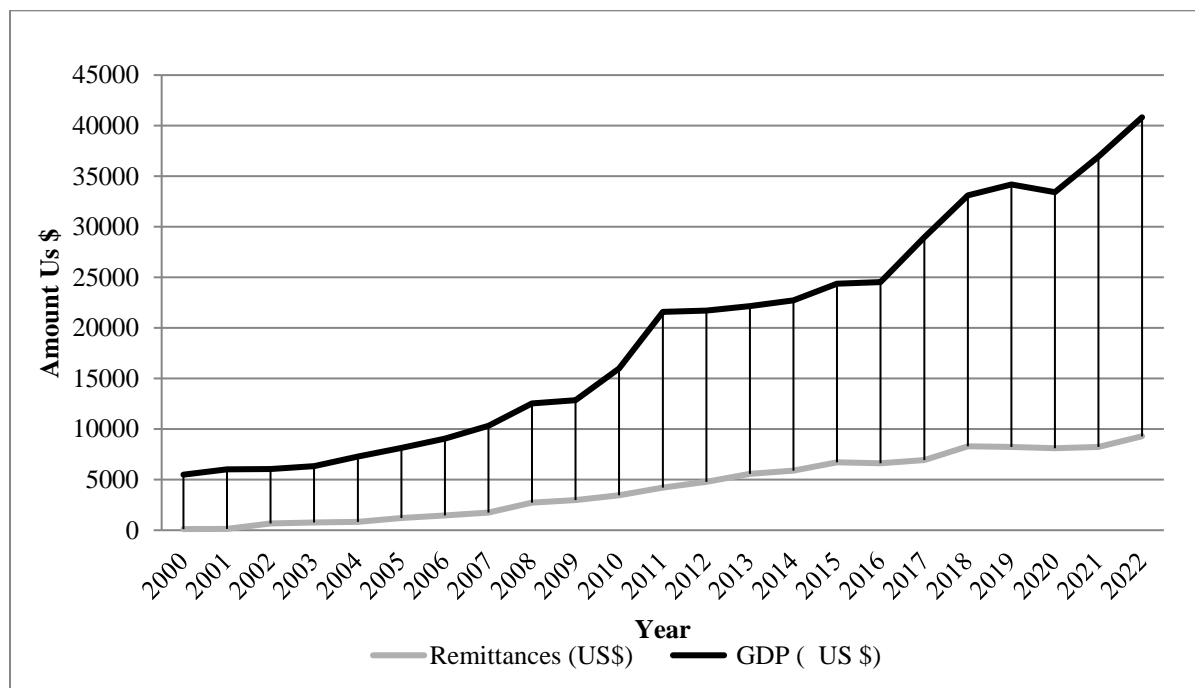


During the study periods, there was a consistent increase in both GDP and Remittances. This suggests a positive correlation, indicating that as the overall economic output (GDP) of the country grows, the amount of remittances also tends to increase (Figure 3). Thus, remittance has been an importance means for Nepal to maintain its financial has been health robust over the last couple of years. With growing number of people leaving for foreign jobs, the remittance has convincingly become one of the sources of foreign exchanges. In fact, the growth of remittance can be an opportunity as well as a challenge. It is worth mentioning that the growth in remittance is the result of labour migration to foreign countries. If this trend continues, then Nepal will certainly face the acute shortage of labour

in the near future. This critical fact should also be taken into consideration by the Government authority and policy makers.

### Figure 3

*Trend of GDP and Remittances in Nepal*



The data obtained from the regression analysis provides valuable insights into the relationship between agriculture, forestry, and fishing's share to GDP (% of GDP) and remittance to GDP (% of GDP). According to Table 1, the constant term of 40.287 represents the estimated value of agriculture, forestry, and fishing's share of GDP when remittances are zero. The coefficient for remittance to GDP is  $-0.571$ , with a significant value of  $t = -5.766$  ( $p < 0.001$ ), indicating that remittances had a negative impact on the contribution of agriculture, forestry, and fishing to GDP. The standardized coefficients (Beta) of  $-0.783$  emphasize the strength and direction of this relationship signifying that a standard deviation change in remittance corresponds to a 0.78 standard deviation decrease in agriculture's share of GDP. The 95% confidence interval for the coefficient ( $-0.777$  to  $-0.365$ ) underlined the reliability of the estimate (Table 1).

This finding consistent with the studies carried out by Rozelle et al. (1999), Atamanov and Vab den Berg (2012), Tuladhar (2014), Khanal et al. (2015), Akozelle et al. (2017), Piras et al. (2018), Chhetri et al. (2020), Ghimire et al. (2021), Sikander et al. (2021), Ali et al. (2023), Chandio et al. (2023), Dhakal and Paudel (2023), Isere and Ehighebolo (2023), Ogunleve et al. (2013), Ali et al. (2018), Mudassar et al. (2018), Dulal (2018), and Kapri and Ghirime (2020), as they are not consistent with the findings of the study. These findings show that an increase in remittance leads to a significant and consistent reduction in the proportion of GDP attributed to agriculture, forestry, and fishing. As a result, the alternation hypothesis was supported. The result revealed that While increased remittance can drive economic transformation and development, it is importance for policymakers to manage the transition to ensured balanced growth and mitigate any potential negative effects on agricultural sector in Nepal.

**Table 1***Regression Analysis*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	40.287	2.034		19.804	.000	36.056	44.517
Remittances to GDP (% of GDP)	-.571	.099	-.783	-5.766	.000	-.777	-.365

Note. Dependent variable: Agriculture, forestry, and fishing's share to GDP (% of GDP)

The effect of remittances on the economy of various countries was significant. Tajikistan leads the nearly half of its GDP contributed by remittances, followed closely by Tonga. Other countries, such as Samoa, Lebanon, and Nicaragua, also demonstrated the economic importance of remittance inflows. Nepal stands out as a country heavily reliant on remittances, ranking fifth globally in terms of the remittance to GDP ratio. Furthermore, the result indicates a stable proportion of remittances to GDP, reflecting a consistent contribution to the economic landscape of these countries. The positive correlation observed between GDP and remittances suggests that as the overall economic output grows the amount of remittances also tends to increase. The study reveals a negative impact of remittances on the share of agriculture, forestry, and fishing in GDP. This is because remittance is the result of labor migration to the international labor market. Due to a large number of active employee working migration, there is a problem of labor shortage for agriculture and other jobs. Additionally, the dependency of families on remittance income means that the Nepali economy is gradually transforming into a consumption-oriented economy due to remittance, resulting in an increase in imports and leading to inflation. The literature review showed that remittance and GDP had a positive relationship.

Thus remittance has played a significant role in the reduction of poverty and unemployment. By providing direct financial support, and enabling investments in human capital development remittances play a crucial role in lifting households out of poverty and fostering long-term economic stability. Remittance is also an important source of foreign currency in Nepal. Therefore, Government authorities and policymakers should formulate and implement policies that can help in boosting the Nepali economy by effectively utilizing and tapping into remittance received in Nepal into productive and manufacturing sectors.

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## Appendix

### *Level Data of Variables of Interest*

Year	Remittances (US\$)	Remittance as of percentage of GDP	Agriculture, forestry, and fishing, value added (% of GDP)
2000	111.50	2.03	38.24
2001	146.99	2.45	35.25
2002	678.49	11.21	36.15
2003	771.07	12.18	35.11
2004	822.61	11.31	34.68
2005	1211.82	14.91	33.82
2006	1453.23	16.07	32.37
2007	1733.86	16.79	31.16
2008	2727.14	21.74	30.31
2009	2983.34	23.21	31.32
2010	3464.09	21.65	33.18
2011	4216.89	19.55	30.81
2012	4792.51	22.08	30.08
2013	5583.70	25.19	28.62
2014	5888.65	25.91	27.46
2015	6729.94	27.63	26.52
2016	6611.84	26.96	25.52
2017	6928.13	23.91	23.70
2018	8286.63	25.03	22.33
2019	8244.47	24.12	21.58
2020	8107.74	24.25	22.18
2021	8225.96	22.28	22.02
2022	9292.85	22.76	21.06

*Note.* World Bank. (2023), World development indicator's database