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Impact of Remittances on Economic Growth in Nepal

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Abstract

Remittances have become a significant source of foreign exchange as well as funds for small business start-ups and expansion and consumption spending of recipient households in developing countries. Accordingly, it is expected that remittances would contribute to economic development. Notwithstanding, there is yet no consensus on the impact of remittances on economic growth. This paper focuses on the impact of remittances on economic growth in Nepal, a small Asian country where remittances were 31% of GDP in 2016. Using data from the World Bank and other sources, the study found that remittances does not significantly impact economic growth. The study also found that democratic form of governance as measured by a dummy variable had a significant and positive impact on economic growth alongside capital formation and exports. Based on additional tests using cointegration and regression analysis, the paper found that there is a possibility that remittances negatively impact economic growth in the long run.

Keywords: economic growth; remittances; human capital; export; money supply; governance.

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1. Introduction

Remittances, which are the transfer of funds by foreign workers to their countries of origin, have become a significant source of financing in developing countries. In 2011, migrants sent approximately three times more to developing countries than these countries received in official development aid. In some countries, remittances have exceeded Foreign Direct Investment (FDI). In addition, remittances to developing countries have risen 25.29% from 2009-2011 compared to the meager 0.59% growth in FDI, indicating that remittances will continue to be a major source of funds in developing countries (Ratha, 2013). However, literatures surrounding the impact of remittances on economic development remains controversial. This study explores the relationship between remittances and economic activity by analyzing the impact of remittances on economic growth and further measures the relationships between remittances and selected macroeconomic variables in Nepal- a developing country where remittances play a significant role in the economy.

Nepal is a small landlocked country in South Asia which shares its northern border with China and its eastern, southern, and western borders with India but unlike its neighbors, Nepal has a relatively small GDP of roughly \$24.8 billion (2016 US Dollars). Primarily an agricultural country, the International Labor Organization (ILO) estimates that around 71.3% of the total population is employed in agriculture (World Development Indicators, WDI). Nepal has a large trade-deficit with India and relies on imports for staple diets such as rice, wheat etc. Even though a large percentage of the population is reliant on agriculture, failure to incorporate effective agricultural and irrigational techniques and heavy reliance on monsoon rain has made agriculture an unsustainable means of income. Historically, the rate of economic growth in Nepal has been low with average growth rate hovering around 2 to 5 percent (National Planning Commission SDG Report 2016). After a decade-long civil conflict (1995-2005) that ended in 2007 after which Nepal became a democracy, there were high expectations that the new government would bring rapid economic growth. However, various hiccups- political instability being one of them- has limited the government's impact on developmental projects. Nepal is currently undertaking a change in its governance after it finally implemented a federal system in 2015. This new constitution brings forward with it numerous fundamental rights that aim to uplift the status of women and historically marginalized ethnic groups. The new federal system divides Nepal into seven different provinces with hopes of greater political and economic influence (National Planning Commission, 2016) and is expected to bring sustainable economic growth over the next decade. This being said, the current employment landscape in Nepal is grim as lack of good job opportunities back home has dramatically shifted the employment and migration pattern in Nepal over the last decade with a growing number of working population now seeking jobs abroad.

In 2016, Nepal received \$6.6 billion in remittances, which was roughly 31.2% of its total GDP (WDI). This ratio made Nepal the third highest recipient of remittances as a percentage of GDP- only behind South Sudan and Tonga (WDI). The rise in remittances-to-GDP ratio has been steep considering the ratio of remittances as GDP inflows was only around 2.4% in 2001 and Nepal now remains one of the most remittances dependent countries in the world. While globalization has propelled many Nepalese to settle abroad all over the world, migration for work purpose is largely concentrated within few selected regions and countries such as Malaysia

and Gulf countries. Although western destinations such as the U.K., U.S.A., Canada and countries like Australia and Japan are preferred since migrants can earn a higher salary in those regions, high costs of emigration and strict immigration policies limit Nepali workers from being able to migrate to these countries. Instead, almost 90% of migrants that migrate for work go to Malaysia and Gulf countries such as Qatar, UAE, and Saudi Arabia for employment where they are generally engaged in low-skilled labor (Shrestha, 2017). Furthermore, unlike migrants to western destinations, most migrant workers in Gulf countries and Malaysia return home after working abroad in these regions and hence are more likely to regularly send money to their households. Additionally, some recent events over the years have further increased the number of people seeking work abroad. In April 2015, Nepal was affected by a 7.8 magnitude earthquake that had a devastating impact on the economy. The Post Disaster Needs Assessment (PDNA) estimated a \$1.9 billion in economic losses – apart from the \$5.2 billion loss in destroyed physical assets (Cosic et. al., 2016). Furthermore, Nepal suffered another huge setback the same year when it faced a four month long economic blockade after the political parties failed to reach a unified consensus regarding the new constitution. The trade route through India, which provides approximately 65% of Nepal's international trade was blocked and the country and its aggregate output, exports, and imports were adversely affected. The blockade also halted the post-earthquake reconstruction process and Nepal experienced a growth rate of 0.6% (at market prices) in 2016- its lowest in 14 years (Cosic et. al., 2016). These two events severely impacted the economic conditions of many households in Nepal and has furthered increased number of Nepalese seeking foreign employment.

Given the importance of remittances in the Nepalese economy and the conflicting reports in the literature on the effects of remittances on economic development, this paper aims to assess the effects of remittances on economic growth by considering selected macroeconomic and social indicators while also accounting for the quality of governance. The paper uses governance as one of the variables which determine economic growth and tests not only for the effects of remittances on economic growth but also to investigate how remittances affected economic growth under two governance scenarios: monarchy and liberal democracy.

The paper is organized as follows: Section 2 is the literature review where selected previous studies on remittances are analyzed. Section 3 provides a description of the data and highlights the summary statistics of the variables in the study. In addition, the section provides an explanation of each of the variables used in the research. Section 4 is the Methodology and provides some details on how the data was prepared for the use in the regression analysis of the response of economic growth to remittances and other variables in the study. Section 5 is the analysis of the empirical results. Section 6 provides policy recommendations. And lastly, Section 7 discusses the limitations of the study and concludes the paper.

2. Literature Review

Although remittances occupy a significant share of GDP in the economy of developing countries, number of studies analyzing the effects of remittances on economic growth are fairly limited. Furthermore, previous literature on these topics tend to focus on a specific country or a region of the world and thus, there have been contradicting findings as to whether remittance do indeed promote economic growth.

Bichaka Fayissa and Christian Nsiah (Fayissa and Nsiah 2004) explored the impact of remittances on economic growth in Africa by studying 36 African countries and found that changes in remittances have a significant and positive impact on growth rate of GDP per capita. Likewise, Meyer and Shera (2013) found that worker’s remittances were positively and significantly contributing in economic growth in the Southeastern Balkan Area. On the contrary, Khan and Islam (2013) argue that remittances tend to generate inflationary pressure in the domestic economy and another study by Lopez, Molina, and Bussolo (2007) concluded that remittances appreciate the domestic currency in small open economies. Furthermore, Matuzeviciute and Butkus (2016) argue that remittances cannot ensure long-run economic growth or solve structural economic problems such as an unstable political climate. However, the study also noted that the effects of remittances vary and noted that countries exceeding 11% remittances -to-GDP ratio were too dependent on remittances which distort the country’s internal long-term growth. The study classified countries into four groups (Table 1) based on how remittances impacted long-run economic growth in their countries.

Table 1. Classification of countries based on remittances-to-GDP ratio by Matuzeviciute and Butkus (2014)

Average Real per Capita GDP (Constant PPP U.S. Dollars)			
		Below 8500	Above 8500
Average Remittances-to-GDP ratio (%)	<i>Above 11</i>	Group A*-lowest likelihood of positive remittance impact on long-run economic growth (includes Nepal)	Group B-developed enough to channel remittances for long-run economic growth but too dependent on them
	<i>Below 11</i>	Group C-highest possibility of using remittances for promoting long-run economic growth	Group D-highest likelihood of positive remittance impact on long-run economic growth

Source : Adopted from Matuzeviciute and Butkus (2014)

The study noted that Group C countries were those that could promote long-run economic growth given certain structural economic problems were resolved whereas Group B countries do not have strong opportunities to channel remittances for long-run economic growth. The study identifies Nepal as a Group A country and thus, identifies Nepal as a country unable to channel remittances towards economic growth. The study argues that these countries do not have a favorable environment for use of remittances for productive investment and that remittances, when used for personal consumption, can promote economic growth at most only in the short run. This study suggests profound implications for Nepal since remittances play a significant part in the Nepalese economy- mostly through its impact on personal consumption purposes.

Most of the works on impacts of remittances indicate that remittances have had positive impacts on developing economies largely through its impacts on education, health, and alleviation of poverty (Taylor, 1999; Cox and Ureta, 2003; Adams and Page 2005). This is shown to be of similar case in Nepal too. Micro-studies analyzing the impact of remittances on household level (Pant, 2008; Shrestha, 2017) suggests that migrant remittances have led to

a decline in poverty and an improvement in living standards for migrant households. While these studies indicate some positive impacts of remittances at household levels, studies analyzing whether remittances have a positive impact on investment and economic growth of the country as a whole remains inconclusive. In her 2012 study analyzing the impact of migrant remittance on economic growth in South-Asia, Cooray (2012) found that remittance had a positive impact on economic growth when education levels and financial sector development are comparatively high. Dahal (2014 p.19) concluded that remittances had mixed effects on economic growth in Nepal. The study showed that remittances had a positive association with financial development and human capital accumulation but a negative association with productivity (manufacturing growth) and international trade. Remittances also had a positive association with school enrollment rates, life expectancy, and reduction in under-5 child mortality rate but the study highlighted that the total volume of exports and imports in Nepal have decreased as the inflows of remittances increased. Uprety (2017 p.130) concluded that remittances are negatively related to per capita GDP in the short run and had no evidence of long run impact. The study also concluded that farm products of Nepali goods contracted as more lands remained uncultivated with the increase of people working abroad and thus, affected the supply of Nepali products while increasing the demand for imported goods. This result is consistent with the 2012 micro-study conducted by Sunam and McCarthy (2015) in Sunsari district where they found that migrant households were spending remittances on either consumption, land speculation or outside agriculture and that circular migration was failing to promote entrepreneurial farming. Shrestha's (2017) study also reached a similar conclusion in that migration reduced participation in non-farm activities of men. This type of trend could perhaps be representative of migrant households throughout the country and perhaps why Uprety (2017 p.130) found that remittances were impeding economic growth in Nepal. A negative relationship between remittances and economic growth presents some implications given the high share of remittances in Nepal's GDP. Therefore this study aims to further analyze the effects of remittances by considering additional variables along with remittances. Considering the historically instable political background of Nepal, this study accounts for the role of quality of governance in explaining the impact of remittances on economic growth to analyze whether a shift to a fully democratic regime in 2007 positively impacted the economy of Nepal.

3. Description of Data and Model Analysis

This paper uses growth in GDP per capita (GDPCAP) as a primary indicator for economic growth. The GDP per Capita is measured in constant real GDP (2010 US). While the main purpose of this study is to study the relationship between remittances and GDP growth, economic growth is influenced by various other factors. Accordingly, this study considers economic growth as a function of remittances, capital formation, money supply, education, exports and governance. Capital formation, money supply, and exports are used as indicators of the country's financial development, education as proxy for human capital and governance to capture the political landscape scenario. This study uses data from 1976-2019 and is based on data that were available from the World Bank, Nepal Demographic and Health Survey and the Institute for health Metrics and Evaluation (IHME). The data for remittances for years 1976-1992 has been taken from the dataset used by Dambar Uprety (2017) – who originally received the dataset for remittances from Gulianna and Ruiz-Aranna(2009). Since the data for

remittances provided by the World Bank was available only from 1993, the extended data set helps to provide additional opportunities for studying the relationship between remittances and economic growth. Table 2 provides the descriptive statistics for the data used in the empirical analysis.

Table 2. Descriptive Statistics of the Dataset used in the model

Variable	Obs	Mean	Std. Dev.	Min	Max
gdp_cap	45	471.6939	169.7541	280.8989	866.1711
rem_cap	45	66.21673	98.96629	0.950431	295.1995
exports_GDP	45	13.57106	5.211017	6.760096	26.32784
gcapform_cap	45	215.4257	119.3373	77.58648	554.4115
m2_supply	45	50.11915	25.43017	15.95033	116.9675
Educ_years	44	2.46311	0.9403779	1.23	4.365167

Source: STATA output

As indicated in Table 2, the following variables have been used in the study:

3.1 Remittances per capita (*rem_cap*)

The data for remittances is taken at current US\$ since data for remittances at real prices were unavailable. The study uses remittances in the form of remittance per capita (*rem_cap*) to evaluate how remittances affect economic growth at an individual level by using the total population data obtained from the World Bank. Table 2 suggests a high variability in the deviation of *rem_cap* when comparing the minimum and maximum of remittance in the dataset. This variability reflects the large growth in remittances in the country- primarily over the last decade.

3.2 Gross Capital Formation/Labor force (*gcapform_cap*)

Economic theory suggests that capital formation (physical capital accumulation, infrastructure growth, technological progress) has a positive relationship with economic growth since countries need capital goods to increase the production of goods and services- and thus, increase their GDP (Solow 1957, Romer 1986, Romer 1990, Mankiw et al. 1992). This study uses Gross Capital Formation per working population to account for the contribution of capital stock to economic growth since capital formation is a good indicator of investment. Working Population is used as a proxy for labor force since dataset for working population was available from 1976-2020.

3.3 M2 Broad Money Supply as percentage of GDP (*m2_supply*)

Money supply is the total value of monetary assets available to a country at a specific time. M2 broad money includes M1 and savings account balances and is assumed to affect economic growth through its impact on interest rate, employment, and output expansion. M2 Broad Money Supply is the broadest measure of financial intermediation and thus, is used in this study as a proxy for financial sector development. A rise in M2 is expected to increase GDP. The increase in M2GDP could cause an increase in consumer spending when interest rate declines.

3.4 Mean School Years of population age 16+ (educ_years)

Education is a proxy for human capital. Economic theory suggests that education increases human capital which, in turn, increases economic growth in the country. This study uses the mean education per capita of population age 16+ by averaging the mean school years of both male and female population. Mean school years is a good proxy for measurement of human capital and using school years of age group 16+ captures majority of working population in the country. A rise in human capital is expected to increase labor productivity and have a positive impact on real GDP.

3.5 Exports of Goods and Services as percentage of GDP (exports_GDP)

An increase in exports can often be associated with an increase in GDP. Export contributes to GDP growth by creating employment and producing foreign exchange and resources required in purchasing advanced technologies from other nations. Advances in technology increases labor productivity and hence a rise in exports promote economic growth. This study uses exports as percentage of GDP in order to analyze the role of exports in relation to GDP/capital and other macroeconomic variables. Exports, as percentage of GDP, has experienced a rather low variability compared to other macroeconomic variables in the study – with the maximum reaching around 26% and the minimum reaching around 9% of GDP with a deviation of about 5%. Nepal's top exports include Fibers, Carpets and other textile products (OEC) and a rather low percentage generated from exports might indicate Nepal's inability to position itself as a major exporting country for goods and other services. The data for export-to-GDP ratio was taken from the World Bank.

3.6 Governance of the country during that year (DUMMY)

One of the primary aims of the study is to understand the effects of governance in economic growth. Nepal officially became a democracy in 2008, and this research uses a dummy variable in the model to analyze the relationship between democracy and economic growth. Democracy encourages economic freedom which is expected to inspire creativity and innovation. Good governance facilitates freedom in private and public sectors. Hence, consolidation of democracy is expected to have a positive effect on economic growth. Countries with sustainable economic growth usually have a democratic governance (Acemoglu et al. 2019) and this study incorporates the effects of democracy on the economic growth of Nepal. The dummy variable is given as 0 for the years before Nepal was a democracy and 1 for the years after it became a democratic country.

4. Econometric Methodology

Since the study involves time-series data of multiple variables, the initial approach was to test the model for stationarity, autocorrelation, co-integration and multicollinearity. Instead of using percentages, nominal values were used for exports and money supply and all the variables were then converted to natural logarithms. Instead of only using the time graph of different variables as an indicator for stationarity, the research uses both the Augmented Dickey Fuller Test(ADF) and the Phillips-Perron (PP) tests on each variables to test for stationarity. After running the model using natural logarithms of the variable the results indicate that all the variables are stationary in the first differences at 1% significance level (Table 3 a.).

Table 3 a). Unit Root Test Results

Variable		ADF Test p-value	PP test p-value
ln_gdp	Zero level	0.9973	0.9990
	First Difference	0.0000	0.0000
ln_rem	Zero level	0.8687	0.9087
	First Difference	0.0000	0.0000
ln_exports	Zero level	0.3929	0.4033
	First Difference	0.0000	0.0000
ln_cap (capital formation)	Zero level	0.6602	0.6954
	First Difference	0.0000	0.6954
ln_m2	Zero level	0.9349	0.9364
	First Difference	0.0000	0.0000
ln_edu	Zero level	0.9656	0.9657
	First Difference	0.0000	0.0000

*dummy

Source: STATA output

Table 3 a. suggests that the null hypothesis can be rejected at 1% level indicating that the variables are stationary.

After testing for non-stationarity, the study then carried out a test for multicollinearity. Having multicollinearity restricts the econometric model and thus affects the coefficients in regression. Variance Inflation Factor (VIF) was used to test for possible presence of multicollinearity amongst variables and since VIF values (Table 3 b.) are less than 10, presence of multicollinearity is rejected. D1. Indicates that the variables are in the first difference form.

Table 3 b). Multicollinearity Test Results

Variable	VIF	1/VIF
ln_exp D1.	1.25	0.797064
ln_m2 D1.	1.18	0.850231
ln_cap D1.	1.13	0.887924
ln_rem D1.	1.09	0.915791
dummy	1.06	0.942307
ln_edu D1.	1.05	0.954686
Mean VIF	1.13	

Source: STATA output

After running the multicollinearity test, the study proceeded to test for possible co-integration and appropriate lagged selection. The co-integration test that was carried out indicates the presence of four co-integrating equations at 5% significance level (Table 4).

Table 4. Co-Integration Rank Test

Johansen tests for cointegration						
Trend: constant					Number of Obs =	40
Sample: 1980 -2019					Lags =	4
Maximum Rank	parms	LL	eigenvalue	trace statistics	5% critical value	
0	154	414.30924	.	424.7264	124.24	
1	167	528.07565	0.99661	197.1936	94.15	
2	178	581.82854	0.93196	89.6878	68.52	
3	187	599.50454	0.58679	54.3358	47.21	
4	194	611.97781	0.46402	29.3892*	29.68	
5	199	620.70851	0.35373	11.9278	15.41	
6	202	626.26768	0.24267	0.8095	3.76	
7	203	626.67242	0.02003			

Maximum Rank	parms	LL	eigenvalue	max statistics	5% critical value
0	154	414.30924	.	227.5328	45.28
1	167	528.07565	0.99661	107.5058	39.37
2	178	581.82854	0.93196	35.352	33.46
3	187	599.50454	0.58679	24.9465	27.07
4	194	611.97781	0.46402	17.4614	20.97
5	199	620.70851	0.35373	11.9278	14.97
6	202	626.26768	0.24267	0.8095	3.76
7	203	626.67242	0.02003		

Source: STATA output

The confirmed co-integration between the variables (in natural log form and not in differences) indicates that, at the very least, four cointegrating equations exist at the 0.05 level and that there is a long-run relationship between them. Since first differences represent only short-run changes, further statistical tests can be used to determine the relationship between variables in the model in the long-run. Here, OLS regression using first difference of variables was carried out to analyze the relationship between economic growth and selected macroeconomic variables. Before running the OLS regression, all the variables were transformed into the natural log and then the logged variables were then first differenced. The natural log was taken to limit the variability of variables since the first difference of the macroeconomic variables in

its original value used in the study increase numerically over the years. Furthermore, log-linear model allows for easier interpretation of results since the coefficient represents the elasticity of dependent variable with respect to exogenous variables in question. For proper lag selection, the Akaike Information Criterion (AIC) was used. The AIC suggested that remittances, money supply and education all had lagged effects on economic growth. The obtained regression result is shown in Table 5.

Table 5). Econometric Regression OLS Regression in First Differences

Source	SS	df	MS	Number of Obs =		
Model	.012240632	6	.002040105	F(6, 36) =	43	
Residual	.019871783	36	.000551994	Prob > F =	3.7	
Total	.032112415	42	.000764581	R-Squared =	0.0058	
				Adj R-Squared =	0.3812	
				Root MSE =	0.278	
					0.02349	
D.ln_gdp	Coef.	Std. Err	t	P>|t|	[95% Conf. Interval]	
ln_cap D1.	0.0651326	0.028056	2.32	0.026	0.0082324	0.1220327
ln_edu LD.	-0.0485944	0.1951837	-0.25	0.805	-0.4444452	0.3472564
ln_exp D1	0.0764859	0.0295013	2.59	0.014	0.0166544	0.1363173
ln_m2 LD.	-0.0192524	0.0621104	-0.31	0.758	-0.145218	0.1067133
ln_rem LD.	0.0028344	0.0060592	0.47	0.643	-0.0094542	0.015123
dummy	0.0211147	0.0079941	2.64	0.012	0.0049019	0.0373275
_cons	0.0165902	83403	1.99	0.054	-0.0003247	0.033505

*LD denotes one-period lag

Source: STATA output

5. Empirical Results Interpretation and Long-Run Analysis

Analyzing the regression chart from Table 5, the data indicates a positive relationship between GDP per capita and Remittances per capita. Similarly, exports, capital formation and the democracy variable all appear to have a positive relationship with economic growth (GDP per capita). The regression indicates a negative relationship of education and money supply on economic growth. This being said, both of these variables are not statistically significant.

As indicated in the study by Dahal (2016) and Meyer and Shera (2013), the positive relationship between remittances per capita and GDP per capita could be asserted to the idea that remittances have a positive association with human capital accumulation. As more money is channeled into sectors of education and health, more capital can be accumulated in the long run. While the finding suggests that remittances have a positive relationship with GDP growth, the coefficient is not as high compared to other variables. An one percentage increase in Remittances per capita growth increases GDP per capita growth by 0.0028% given that other variables remain constant. Although this finding signifies as a positive outlook towards Nepal's economy, this result is not statistically significant and thus, we cannot conclude that remittances have a positive impact on economic growth of Nepal.

One additional factor that this study considered was the effect of governance on economic growth. The regression estimates suggest a positive relationship between GDP per capita and dummy variable- which indicates that democracy has a positive relationship with economic growth. The democratic form of governance seems more favorable for the establishment of new firms- both small and large scale. It might also be less restrictive towards foreign investment, trade, startup establishments, etc. Given Nepal is still in the initial phase of democratic system, the finding presents a positive outlook for the future- should the country manage to overcome its political instability.

With regards to the long-run effects of variables on each other, Vector–Error Correction Model (VECM) has been widely used in literatures dealing with time-series data. The limited number of observations, however, limits this study from fully incorporating and analyzing the exact long-run causality amongst different variables in question. Thus, although VECM can be computed given the number of observations i.e. 44 observations, some shortcomings do remain. In analyzing long-run relation in their study, Uprety (2017) used VECM on dataset from 1976-2013 i.e. 38 observations acknowledging literatures that used even lesser number of observations (Uprety, 2017 p.130). To keep the analysis simple, we run the VECM model setting rank = 1 although the Johansen test indicated four co-integrating equations and set the maximum lag in the model to 4 time periods based on AIC lag-selection criterion for the model. Only the long-run equation is shown, and GDP/Capita is positioned as the dependent variable in the model. Since the VECM model originates from differencing of Vector Autoregression model (VAR) which uses natural logarithms of the selected macroeconomic variables, VECM is run on natural logs of the variables.

Table 6). Long Run Equation in VECM

Vector error-correction model							
Sample:	1980 - 2019			Number of obs =	40		
Log likelihood =	528.0756			AIC	= -18.05378		
Det (sigma_ml) =	8.05e-21			HQIC	= -15.50434		
				SBIC	= -11.00271		
Cointegrating equations							
Equation	Parms	chi2	P>chi2				
_ce1	6	5433.778	0.0000				
Identification: beta is exactly identified							
Johansen normalization restriction imposed							
	beta	Coef.	Std. Err.	z	P>|z|	[95% Conf Interval]	
_ce1							
	ln_gdp	1	.	.	.	.	.
	ln_cap	-0.0677482	0.1682121	-0.40	0.687	-0.3974379	0.2619415
	ln_exp	0.9929943	0.0930157	10.68	0.000	0.8106868	1.175302
	ln_m2	-0.2047387	0.2469001	-0.83	0.407	-0.688654	0.2791766

ln_edu	-4.094013	0.5680005	-7.21	0.000	-5.207274	-2.980753
ln_rem	1.211008	0.0250785	48.29	0.000	1.161855	1.260161
dummy	-2.830347	0.053485	-52.92	0.000	-2.935175	-2.725518
_cons	-21.0911	.	.	.	.	.

Source: STATA output

Table 6. shows the long run equation of the VECM. Like aforementioned, ln_gdp is positioned as the independent variable and in order to interpret the Johansen normalization result, the sign of coefficients must be reversed. The results show that in the long run, ln_rem has a negative effect on ln_gdp. Exports (ln_exp) is also shown to have a negative impact on ln_gdp. Although this result contradicts the export-led growth (ELG) hypothesis, the relationship is statistically significant and this result necessitates further analyzing- especially considering the growing number of literatures that argue against the ELG hypothesis (Ahmad and Harnhirun, 1996; Lee and Huang, 2002; Kim and Lin, 2009; Furuoka and Munir, 2010). ln_edu, ln_m2, and dummy all have a significant positive relationship with ln_gdp on long run thus indicative that education, money supply and democratic form of governance all positively impact GDP growth. The negative relationship between remittances and economic growth, however, generates a serious issue given how remittances remain a backbone of Nepal's economy.

6. Conclusion and Policy Recommendation

This study analyzes the effects of remittances on the economic growth of Nepal by using Ordinary Least Squares (OLS) regression method after accounting for the stationarity in the data. The study found that remittances have a positive relationship with economic growth. However, the regression estimates for remittances are insignificant and thus, we can conclude that there is no significant impact of remittance on economic growth, especially in the short run. While the long-run analysis (Table 6) suggests that remittances negatively impact economic growth, the result, although statistically significant, should be analyzed with caution. In this context, further analysis is required to exactly determine the causal effects of remittances on economic growth. Notwithstanding, the negative relationship does validate that remittances do not positively impact economic growth in Nepal. Hence, the result indicates that there is an urgent need to quickly address 1) the ongoing labor migration pattern and 2) how remitted money can be channeled towards economic growth.

After the April 2015 earthquake and economic blockade, Nepal suffered from stagnation and low economic growth. Following a slowdown in 2016, the Nepalese economy was expected to gradually bounce back after the implementation of earthquake reconstruction. However, the ongoing worldwide COVID-19 pandemic brought several new health, education, and economic challenges to the country and the major set back due to the pandemic is yet to be over. The impact of the COVID pandemic on remittances and socio-economic condition of migrant workers is also huge. Given lucrative employment opportunities remain bleak back home, the number of people seeking work abroad is expected to increase in the coming years. Thus, the government should swiftly implement policies that support foreign workers and foreign employment as well as create opportunities at home for the returnees.

A major issue facing Nepali workers right now is the unsuitable and rough working conditions abroad. There have been numerous reports of Nepali workers suffering from domestic violence, forced overtime labor, inhumane living situations, etc. Nepal banned women from travelling to the Gulf area as domestic workers in 2016 due to such complaints and banned its people from working in Malaysia in 2018 due to disputes between the two governments regarding the immigration requirements for Nepalese workers. In light of the foregoing, the Nepalese government should make targeted policies to protect the rights of Nepalese workers abroad in order to raise their morale and productivity. Since most returning labor migrants work in Malaysia and Gulf countries and are engaged in low-skilled labor where they are more likely to be subjected to harsh work environments, the first action of the government should be to reach strong bilateral agreements that eradicates such practices. Furthermore, rather than focusing on sending people abroad for work, the first step should be to implement policy actions that support and encourage employment and investment opportunities for returning migrants. This would not only incentivize the labor force within the country to stay in the country but also encourage workers abroad to use their earned money on investment and entrepreneurial opportunities. This being said, a significant number of people still seek foreign work by travelling undocumented. Hence, the Nepalese government should continue to prevent companies and employers abroad from carrying out such practices. A major reason why a lot of money is remitted back through unofficial channels could be because workers abroad are undocumented or are engaged in foreign employment illegally. Helpful policies and regulations would prevent workers from having to seek foreign employment illegally and would facilitate the flow of remittances through official channels which can be easily measured and documented.

The study shows a positive and significant relationship between democracy and economic growth. Hence, the political landscape of Nepal provides opportunity for the country to further increase economic growth. The new constitution promulgated in 2015 divided Nepal into seven provinces- with hopes that decentralization will speed up infrastructural and governmental activities. The decentralization of power allows each province to exercise unrestricted policies regarding infrastructure development, budgeting etc. So, each province can implement policies and programs that motivate households to use the remitted money for business activities as well. Even though the federal system is still in its initial stage, the government should implement policies that support these activities as quickly as possible to utilize the remitted money. Remittances have primarily continued to become a means to alleviate poverty and improve quality of life in Nepal and even though it can help foster economic growth, the effect of remittances in fostering long-run economic growth in Nepal has been insignificant if not counter-productive. Thus, the government should not only formulate policies that promote investments but also make sure that the policies are carried out to channel remittances within Nepal so that the money can drive economic growth. Nepal's current political and social scenario provides great opportunity for such practices and it is imperative that the government immediately implement certain policies in order for remittances to have a strong impact on both short-term and long run economic growth in the country.

Although much of this paper has focused on economic growth i.e. GDP growth to be precise, it should be understood that economic growth is not the single-most important indicator of a country's development. Even though this study found that remittances had no short-run

impact and negative long-run impact on GDP growth, remittances could in fact be playing a major role in improving the socio-cultural environment of the country. As mentioned in the literature review section of the paper, several authors have analyzed the impact of remittances on household level and further microstudies can help us better understand how and why the remitted money is being consumed the way it is. Households could perhaps be spending the money on education and health thereby significantly improving economic opportunities of its members. Likewise, it is possible that remittance is playing a role in reducing gender discrimination, caste-based discrimination, domestic violence, illiteracy, malnutrition etc. Thus, further studies associating impacts of remittances on these areas will better guide policymakers regarding the role remittances play in improving the socio-economic landscape of Nepal.

7. Limitations of the Study

This study analyzed the effects of remittances on the economic growth of Nepal. However, it has some weaknesses. One potential issue is the sample size of the data. The data sample for the final regression model included data from 1976-2019 i.e. 44 observations. This could lead to a poor sample since the central limit theorem suggests large datasets for the data to be normally distributed. However, this study has used the largest data set that was possible and while the data set is large enough to carry out statistical estimates, a larger dataset would have been preferable since lagging the variables during regression also caused losses in degree of freedom.

Apart from the limitation in statistical data, the study is also limited also due to the fact that remittances are also channeled through unofficial sources and are not officially recorded. The study incorporates remittances that have been sent only through official channels and thus, there is a strong possibility that a large portion of the remitted money has not been accounted for. As mentioned above, the dataset for remittances was taken from the data used by Uprety(2017) in his research- who originally used the dataset provided by Giuliano and Ruiz-Arranz(2009). So, a more accurate recording of remittance would help improve the results. Furthermore, since Nepal became a democratic country only in 2007, 13 years period of democracy used as dummy might not fully reflect the impact of governance on economic growth of the country.

Another concern of the study was in determining the lag length selection for variables. It is common to have a lagged relationship between the endogenous and exogenous variables in the model and while there have been some criterions to determine appropriate lag lengths (Akaike, Schwartz-criterion), there is a possibility that different results suggest different lag lengths. This research used Akaike Information Criterion(AIC) to select the most appropriate lag. Using the Schwartz criterion, in turn, indicated another lag selection of variables. After observing alternative models, the one with the lowest AIC value was preferred. The regression result with the lowest AIC value indicates that the variables that are being lagged show a stronger correlation with the dependent variable (GDP growth) and hence, lagging the variables would better explain the relationship between these variables more accurately since the correlation between variables is not fully observed in a single year time frame. Furthermore, the study uses the commonly practiced OLS model for linear regression. However, since the independent variables are co-integrated, there could be a possibility that the relationship between the variables is non-linear. Although the VECM does establish long-run pattern of

variables in question, limitation of VECM- especially in determining the exact impact of variables on economic growth- provides opportunities to analyze the relationship further using different theoretical considerations.

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- WDI, World Development Indicator data base (World Bank)

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