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The Effects of Remittances on the Economic Growth of Cameroon

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Abstract
This work set out to investigate the effect of remittances on the Economic Growth (GDP) of Cameroon. Specifically, its (a) investigate the relationship between remittances and the GDP of Cameroon,(b) scrutinise the effect of remittances paid on the GDP of Cameroon and (c) examine the effect of remittances received on the GDP of Cameroon. In order to do this, we obtained data from the World Bank Development Indicators for a period of 37 years that is from 1980-2017. In order to analyse the data, use was made of STATA-14 and we employed correlation and the multiple regression techniques. To ascertain the results, Pre-test was carried out to test for stationary, multicolinearity and heteroscadasticity. The correlation results show that, there exist a positive (0.495) and statistically significant relationship between remittances and GDP. The multiple regression results show that Remittances paid positively and significantly affect GDP. The correlation as well as the regression results further show that remittances received also have a positive but statistically insignificant effect on the GDP of Cameroon between the periods of 1980- 2017. We thus recommend that the Cameroonian government should create a favourable atmosphere for migrant workers to remit more funds and also to transfer the acquired knowledge and technologies back home. Banks and money transfer agencies should moderate their tedious conditions required to receive and send money.

Keywords: GDP, Remittances Paid, Remittances Received and FDI

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I. Introduction

Low and unsteady economic growth rates and strategies for fostering growth are major issues of concern for Cameroon. Remittances naturally come from migration as basic gains and compensations to the emigrant countries for losing part of their labour force (Blouchoutzi & Nikas, 2014). Remittance is a new phenomenon in the global financial system because of its size and impact on the world economic systems. Remittances from overseas play a salient role in the development of many African countries including Cameroon. Migrants' remittances have currently been ranked as the second largest source of external inflows to developing countries behind the Foreign Direct Investment (FDI) (World Bank, 2014). This increase in remittances to developing countries can be recognised due to the increase in the number of people going abroad; and faster, easier and cheaper modes of transferring money around the world today (Imai, Gaiha, & Ali, 2012) and (World Bank, 2014).

For many developing countries, remittances constitute a large source of foreign income relative to other financial flows. Remittances have shifted seriously to reducing poverty and promoting human development. Evidently this is well documented and often well reported to anchor and influence the overall development process (Ratha, 2007) and (Das & Serieux, 2010). One of the most noticeable effects of globalisation in the world today is the great increase in migration among countries. The interconnectedness of the world makes it possible for people to move in considerable numbers across national boundaries in search for greener opportunities on foreign soils. Geographic barriers have been reduced; distances are shortened thanks to recent means of communication which have contributed to the facilitation of migration.

There is a growing debate on how migrants' remittances are used and to what extent they contribute to the migrants' country of origin (Ratha, 2003). Developed countries serve as the origin of total remittances, with the United States of America playing the leading role. It is believed that remittances from south-south are important and even from north-south flows but one thing is certain about this which is the scarcity of data (Ofeh & Muandzevara, 2017). Since the 1980s, remittances to countries in Latin America, the Caribbean, and the East Asia and Pacific regions have grown more rapidly than the average for developing countries generally. In 2005,

the top three recipients; China, India and Mexico accounted for more than one-third of the remittances to developing countries. Among the top 25 recipients of remittances, only one Nigeria is in Sub-Saharan Africa (SSA) but three of the eight countries in South Asia; Bangladesh, India, and Pakistan appear on the list (Gupta, Patttillo, & Wagh, 2007).

In addition, there are flows of remittances that cannot be measured because they are sent through informal channels such as 'Hawala' and 'Hundi' in South Asia (Pakistan) and 'Pasala' in the Philippines (Yang, 2011). So, it is therefore difficult to evaluate the real value of migrant remittances on economic growth since most remittances are sent informally (Ofeh & Muandzevara, 2017). Most often, people use unofficial channels like *Hundi* and *Hawala* to reduce the sending cost of remittances which are called informal remittances. Informal channels include money earned abroad brought back by family, friends or the migrant themselves (Larsson & Ångman, 2014) or through a network of relationship like friendship, kinship and regional attachment (Rahman & Yeoh, 2008). Government supervision and laws are associated with formal channels such as banks, postal services, Money Transfer Operators (MTO) and other wire transfer services. In most cases, these channels are related to high transaction costs and exchange loss (Sutradhar, 2020). However, because of recent attempts to fight money-laundry these informal channels could be decreasing and are expected to be higher in countries with less developed financial markets (Giuliani & Ruiz Arranz, 2009).

In studying the impact of remittances at the aggregate level, most analysts have concentrated on Latin America or South Asia, where the volumes swamp those going to SSA. But at the base, remittances are private intra-family or intracommunity income transfers that directly addresses the most relevant challenge for SSA; poverty. Further Studies from the World Bank (2020) show that remittances alleviate poverty in lower- and middle-income countries, improve nutritional outcomes, are associated with higher spending on education, and reduce child labour in disadvantaged households. A fall in remittances affect families' ability to spend on these areas as more of their finances will be directed to solve food shortages and immediate livelihoods needs. The concrete reason for most households in Cameroon to have someone abroad so that they can lean on for remittance help is finance (Baye, 2005). It is difficult to evaluate the real value of migrant remittances on Cameroon economic growth since most remittances are sent informally. At the same time, migration necessitates brain-drain that hinders economic growth. Also the real impact of migrant remittances on Cameroon's economy could be minimised by volatile exchange rates and domestic inflation.

As concerns the problem statement, remittances play an important role in developing countries, as a source of household income and are considered as a stable source (Alfieri, Havinga, & Hvidsten, 2005). Many families rely on remittances sent to them by their family members abroad to live or "survive" on monthly basis or annually. Remittances have become very important in the society. Given its importance, many people seem to see it just as a simple transfer of money from one family member living abroad to his family members back home to satisfy their daily needs, they forget to notice that it implies capital inflow, economic development and also rise in foreign device. Studies done in Cameroon and SSA in general have concluded that, remittances have a positive impact on the economic development of the country. Even though studies have proven that remittances have a positive impact on the economic growth of Cameroon, the reality seems to be contradictory because remittances impact is not physically felt on the country's growth. Instead, the country's development is seen to be slow and somehow reluctant, making us to doubt on the impact of remittances on the economic growth of the country. Despite the fact that there is a considerable amount of remittances inflow in the country, economic growth is still lagging behind. Pushing many people to think that the Cameroonian diaspora has no impact on the economic development of the county. This notwithstanding, remittances come across with a lot of short-comings too which hinders human development, human capital, labour supply and inequitable distribution of goods and services in the receiving countries. Our problem therefore is to assess the effects of remittances on economic growth in Cameroon during the time frame of 1980-2017, while paying attention on its significance.

In light with the above background, we have as main objective; to examine the effects of remittances on economic growth in Cameroon.

Our specific research objectives are:

- ✓ to identify the relationship between remittances and the GDP of Cameroon,
- ✓ to assess the effects of remittances paid on the GDP of Cameroon
- ✓ to assess the effects of remittances received on the GDP of Cameroon.

Most of the existing literature only provides the joint impact of remittances for developing or emerging countries (Sutradhar, 2020) and others focused more on the impact of remittances on Sub-Sahara Africa, without a critical view on Cameroon as a unique country. The originality of this research lies in endeavour to segregate remittance received and remittance paid in the context of Cameroon.

The rest of the paper is made up of 5 sections structured in the following way: section 2 will focus on literature review, section 3 will duel on the methodology, section 4 will present the findings and section 5 will conclude the paper and give recommendations.

II. Literature Review

Long before colonisation, people were already moving for several reasons: migration is a phenomenon as old as man. Written and oral sources of the history of Cameroon show that migration is an old practice among its people. Presently, the increased flow of Cameroonian migration is due to a general movement from the countryside to the cities; in search of jobs, education and to run away from the internal crisis devastating the Anglophone sides of the country and a tendency towards international migration, particularly to African and European countries (Zourkaleini, et al., 2013).

In the mid- 1980s, Sub- Saharan Africa entered in an unexpected long period of economic instability. This disadvantaged vulnerable population and reduced their ability to properly care for younger generations. In this situation of economic slowdown, African authorities started looking for new development strategies. This justified the application of the first Structural Adjustment Programmes (SAPs), followed by new industrial and agricultural policies, and the devaluation of the CFA franc in 1994. The first adjustment focused on jobs followed by salaries, both of which are elements that increase the desire to leave a country. The economic crisis became a particularly fertile context for the emergence of many survival strategies, including international migration (Zourkaleini, et al., 2013).

Nowadays, migration is seen by many young people as a strategy to fight against unemployment and as a continuous search for better living conditions. As Tabi (2009) pointed out: "Before the outbreak of the economic crisis in the 1980s, a tendency towards sedentarisation of Cameroonian workers was observed; a complete policy framework for the Cameroonisation of senior staff was also implemented. Migration during this period was principally related to study purposes, hence its selective character" (Tabi, 2009). The emigration of Cameroonian skilled workers was partly limited by the requirement for those who studied abroad on government scholarships to return and work in the country for at least 10 years before leaving public administration. Since then, emigration has been enormously rising.

Migration in Cameroon can be described through several factors that discourage potential immigrants and reduce migration flows into Cameroon, and cause the leaving of many Cameroonians out of the country but also within the country. Indeed, like most developing countries, Cameroon has been experiencing development difficulties since the 1980s due to poverty, economic crisis, climate change disasters, conflicts, soaring population growth, external debt burden, the poorly controlled urbanisation of cities and adjustment policies that are often not suited to the national situation.

Most displacements associated with conflicts in Cameroon historically occurred in the Far North, the poorest region in the country. The Boko Haram insurgency, which originated in Nigeria, and military operations against it have fuelled insecurity there, along with the activities of other armed groups. Boko Haram has been conducting its operations from within Cameroon since 2014, triggering the majority of new displacements recorded in the country each year. A crisis in the North West and South West regions, which began in 2016 known as the Anglophone crisis has accelerated the speed and extent of migration in and out of the country for the past 4 years.

According to local media, more than 1,500 families have been rendered homeless in the Far North region since the start of September as a result of heavy rains and flooding (Happi, 2020). According to the Governor of the Littoral region, approximately 900 families (or 4,410 people) were displaced on August 21st from the city of Douala (Littoral region) as a result of heavy rain and flooding (Floodlist, 2020).

Migration in Cameroon has an impact on the national economy. Indeed, the transfer of funds by Cameroonian emigrants helps fight poverty. According to the World Bank, the number of remittances from Cameroonian migrants was estimated at USD 103 million in 2005 that is 2.5 percent of official development aid. The amount of funds transferred is constantly increasing. Estimated at USD 11 million in 2000, it rose to USD 100 million in 2004 and USD 167 million in 2008. This amount represents 0.8 per cent of the country's gross domestic product (World Bank, 2009).

Remittances in Cameroon are personalised and used for medical care, school fees, rent payments or the purchase of consumer goods. These transfers also stimulate the country's economic activity by replacing credit and other financing methods and facilitating the initiation of projects and other income generating activities. Remittances significantly reduce the foreign exchange losses caused by deficits in the balance of payments.

Cameroonian migration also has an impact on the labour market. The increase in the transfer of funds led to the expansion of the banking system and the multiplication of banks and Money Transfer Operators (MTO), thus generating thousands of jobs. For example, Thanks to migration and remittances many MTO such as Money Gram, Western Union, Express Union (which is the oldest), have widened their branches and employed many Cameroonians.

The darker side of emigration is that it leads to brain drain. According to statistics provided by the Organisation for Economic Co-operation and Development, in 2005 Cameroonian migrants in European

countries numbered 57,050. Some 42.3 per cent of these are thought to be highly qualified. This phenomenon specifically concerns doctors and academicians.

III. Methodology

This study used the time series data analysis to analyse the impacts of remittances on the economic growth of Cameroon. The multiple linear regression was used to analyse all the variables; the unit root test was used to test the variables in order to have an effective model specification. The study covered the period of 1980-2017. Ordinary Least Square was the technique employ for the analytical framework.

The Ordinary Least Squares (OLS) are commonly used to test hypotheses of differences among factor-level means in repeated measures data, and available in a variety of commercial statistical software packages, generally under the rubric of general linear model (Ugrinowitsch, Carnevale, Lamas, & Tricoli, 2005). According to Guidolin and Pedio (2018) this model is the most widely used estimation method applied to a regression procedure, which displays many desirable properties, listed and discussed below. The Ordinary Least Square is used to predict values of a continuous response variable using one or more explanatory variables and can also identify the strength of the relationships between these variables (often referred to as prediction and explanation).

The model specification for remittances and GDP is of the form:

$$\log GDP = a_0 + a_1 logREM + a_2\, logCONS + a_3\, logEXP + a_4 \log FDI + a_5 \log Govexp + a_6 \log POP + a_7 \text{trade} + \mu \quad \ldots\ldots 1$$

while that of Remittance paid and GDP is of the form:

$$\log GDP = a_0 + a_1 logREMPaid + a_2\, logCONS + a_3\, logEXP + a_4 \log FDI + a_5 \log Govexp + a_6 \log POP + a_7 \text{trade} + \mu \quad \ldots\ldots 2$$

and that of Remittance receive and GDP is specified as:

$$\log GDP = a_0 + a_1 logREMRec + a_2\, logCONS + a_3\, logEXP + a_4 \log FDI + a_5 \log Govexp + a_6 \log POP + a_7 \text{trade} + \mu \quad \ldots\ldots 3$$

where GDP stands for Gross Domestic Product, REM for remittances, REMPaid is the remittances paid, REMRec stand for remittances received, FDI represent Foreign Direct Investment, trade openness (imports and exports), Govexp is for government expenditure, CONS is consumption, POP is the population and *u* the error term.

IV. Findings

In this subsection, we carried out the trend analysis; presented the results of the various tests, presented the descriptive statistics and correlation results and then the regression results.

Trend analysis

The figures below show the trend of all main variables used in this study. That is remittances, remittance receive, remittance paid, and GDP. The trend of other variables used in our model like Consumption, education, export, government spending, foreign direct investment, population and trade can be seen in the appendix.

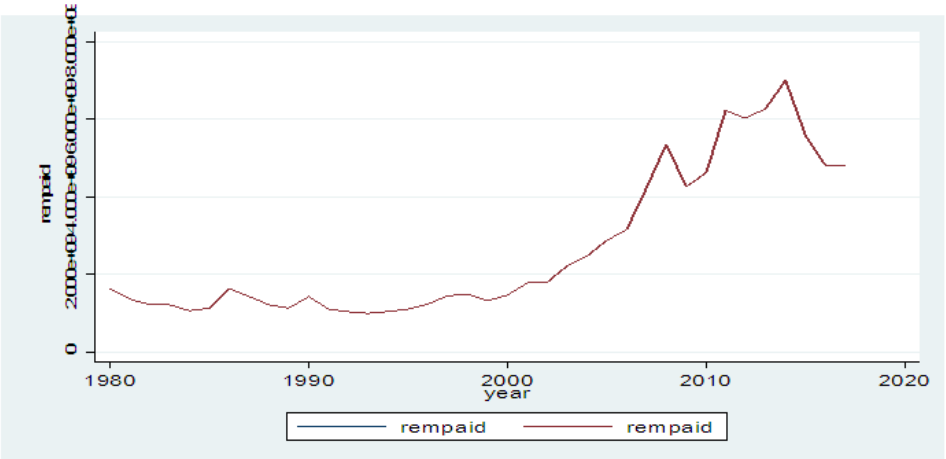

Figure 1: *Trend Analysis for Remittance Paid from 1980-2017*

Source: By authors, using data from the World Development Indicator

When looking at the trend of remittances paid, we can notice that the trend was very low from 1980-2002, during these years the rate of remittances paid was constant, Remittances paid took back a positive growth trend in 2003 and decreased a bit in 2009. It reached its peak in 2015 and dropped back 2017.

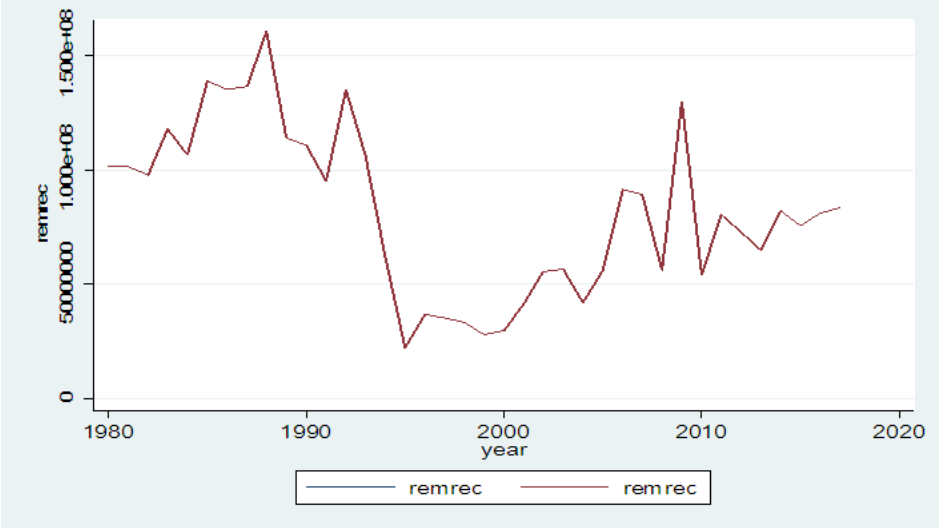

Figure 2: *Trend Analysis for Remittances Received from 1980-2017*

Source: By authors, using data from the World Development Indicator

When we look at the trend of remittances received, we discover that the trend has being greatly fluctuating. In 1980, the trend of remittances received had a positive drift as it was high, it reached its peak in 1989. The stochastic nature showed that the lowest annual receipts of remittances were recorded in 1995. From 1996-2010, it was constantly fluctuating while from 2010-2017, it had a constant standard speed.

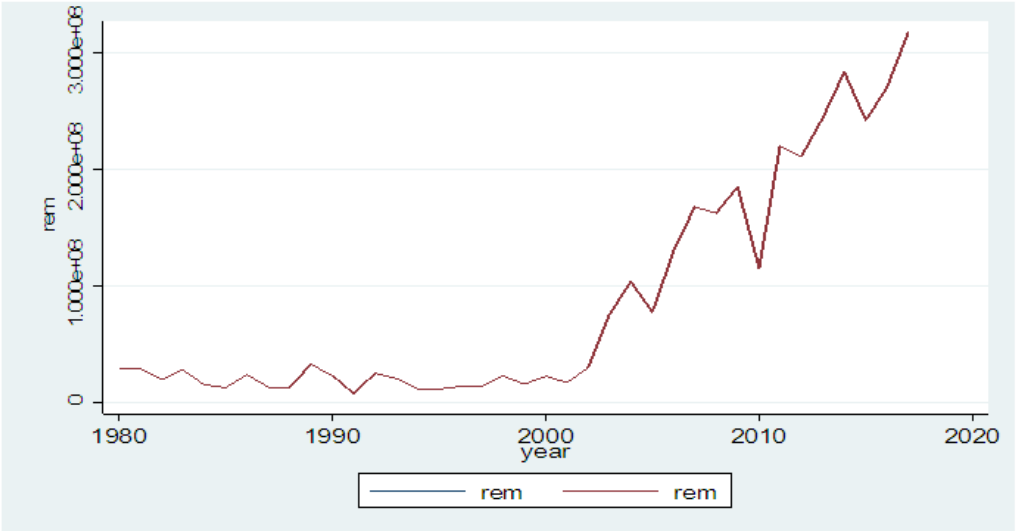

Figure 3: *Trend Analysis for Remittances from 1980-2017*

Source: By authors, using data from the World Development Indicator

When looking at the trend for remittances from 1980-2017 in the figure above, we can notice that the trend has not being continuously increasing nor continuously decreasing. From 1980-2000, the trend was constant with a negative drift, in 2004, remittances increased but dropped back in 2005, it rose again in 2007 and decreased again in 2010. Since then, it constantly increased till 2017.

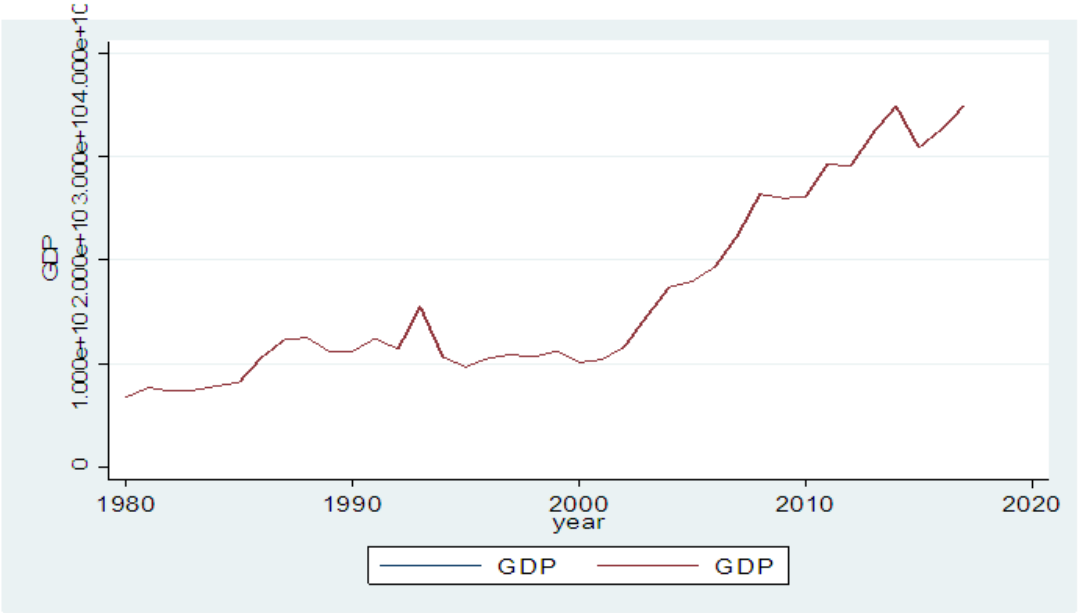

Figure 4: *Trend Analysis for GDP from 1980-2017*
Source: By authors, using data from the World Development Indicator

As concerns the figure above, trend for GDP from 1980-2017, has known a gradual but consistent increase. Its lowest year was in 1980, followed by 1985 and later on 1995 and 2000. It reached its peak in 2015 and 2017.

The trends on the figures, test for the stationary of the variables used in our model by examining whether the variables are with trend or without trend. Also, the study investigates if any trend exists, such trend exhibits random walk with drift or without drift. However, the graphs of the various variables exhibit no particular trends within our period of study (1980-2017) instead they are stochastic with drift.

Econometric Tests Results

Since this is a time series analysis and the variables are measured in dollars, we log all our variables in order to make it exhibit a linear regression so as to avoid spurious results. This is because time series data and their analysis are subject to various econometric problems. It is therefore incumbent to conduct the tests for these problems to find out whether our variables are good for estimation and if results obtained from them are good for policy prescriptions. Below are the results of the tests for multicollinearity, Unit Root or stationarity, autocorrelation and the test for heteroskedasticity.

Test for Multicollinearity

Multicollinearity between independent variables of the model for this research was tested using the Correlation Matrix. The results of this are as presented below.

Table 1: Correlation Matrix Results

	logGDP~1	log~d_d1	logcon~1	logedu~1	logexp~1	logFD~d1	loggov~1
logGDP_d1	1.0000						
logremPaid~1	0.2705	1.0000					
logcon_d1	0.8781	0.2589	1.0000				
logedu_d1	0.8010	0.2938	0.7126	1.0000			
logexport_d1	-0.3114	-0.0624	-0.4225	-0.3596	1.0000		
logFDI1_d1	0.1113	0.2016	0.1189	0.0235	0.1423	1.0000	
loggovexp_d1	0.3833	0.4119	0.2808	0.5145	-0.0728	0.1514	1.0000
logpop_d1	0.0923	-0.2116	0.0466	0.0882	0.0599	0.0773	0.1263
logtrade_d1	-0.6001	0.2287	-0.5659	-0.5301	0.4560	0.0213	-0.1675

	logpop~1	logtra~1
logpop_d1	1.0000	
logtrade_d1	-0.1552	1.0000

Source: By authors, using data from the World Development Indicator

The results show that there exist a weak but positive relationship between remittance paid and remittance and GDP (0.2705). There exit a positive and strong relationship between education and consumption (0.7126), thus to avoid multicolinearity, these two variables should not appear on the same model. Thus, we drop education in our final regression analysis.

Table 2: Correlation Matrix of Remittance Receive and GDP

	logGDP~1	log~c_d1	logcon~1	logedu~1	logexp~1	logFD~d1	loggov~1
logGDP_d1	1.0000						
logremrec_d1	0.1698	1.0000					
logcon_d1	0.8781	0.0831	1.0000				
logedu_d1	0.8010	0.1667	0.7126	1.0000			
logexport_d1	-0.3114	-0.1390	-0.4225	-0.3596	1.0000		
logFDI1_d1	0.1113	-0.5680	0.1189	0.0235	0.1423	1.0000	
loggovexp_d1	0.3833	-0.0174	0.2808	0.5145	-0.0728	0.1514	1.0000
logpop_d1	0.0923	0.0103	0.0466	0.0882	0.0599	0.0773	0.1263
logtrade_d1	-0.6001	-0.0867	-0.5659	-0.5301	0.4560	0.0213	-0.1675

	logpop~1	logtra~1
logpop_d1	1.0000	
logtrade_d1	-0.1552	1.0000

Source: By authors, using data from the World Development Indicator

The results on table 2 equally show that, there exit a weak but positive relationship between remittances receive in Cameroon and remittance and GDP (0.1698). There equally exit a positive and strong relationship between education and consumption (0.7126), thus to avoid multicollinearity, these two variables should not appear on the same model.

To confirm the test of multicollinearity, we go further to do the vif test.

Table 3: VIF Results

Variable	VIF	1/VIF
logedu_d1	2.89	0.345860
logcon_d1	2.63	0.379730
logtrade_d1	2.37	0.422373
logremPaid~1	1.90	0.527069
loggovexp_d1	1.66	0.601452
logexport_d1	1.43	0.700062
logpop_d1	1.14	0.878240
logFDI1_d1	1.14	0.880266
Mean VIF	1.89	

Source: By authors, using data from the World Development Indicator

The VIF test results on table 3 show that Multicollinearity doesn't exist as most of the variables in the VIF are less than 5. To test for stationarity, we run a spurious regression to check if the variables are stationary by comparing them with durbin Watson. The results show that it is stationary since the R square is greater than Durbin Watson after running a normal regression. That is; R square (0.8556) is lesser than a Durbin-Watson d-statistic (9,37) = 1.970811. The rule of thumb states that when r square is greater than the Durbin Watson then the results are non-stationary and so we have to make it stationary without which the regression will be spurious and cannot be used for forecasting or recommendation. In our case the R square is less than the Durbin Watson so our time series variables are stationary. But for the sake of clarity, we will do the Durbin Watson test to confirm their level of stationary as follows; Durbin-Watson d-statistic (9,37) = 2.199219 greater than R-squared = 0.8619so it is stationary for remittance received and Durbin-Watson d-statistic (9,37) = 2.071043 greater than R-squared = 0.8604 for remittance paid confirming the stationary of our results.

Test for Autocorrelation

Apart from the Durbin Watson test we equally used the Breusch-Godfrey to test for autocorrelation.

Table 4: Breush-Godfrey Test

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Breusch-Godfrey LM test for autocorrelation
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lags(*p*)	chi2	df	Prob > chi2
1	0.004	1	0.9469

H0: no serial correlation

The hypothesis in this case is:

Since from the above table, chi2 is greater than 0.05 or 5%, the null hypothesis can be accepted. In other words, there is no serial correlation between the residuals in the model. Therefore, we will not correct for the violation of the assumption of no serial correlation.

Test for Unit Root

Also, time series data can suffer from the problem of non-stationarity. To check for this, the Augmented Dickey-Fuller (ADF) test has been employed. However, the variables of the model for this study were found not to be stationary at levels. To solve this problem, they were differenced by a year. It should be noted that a variable is said to be stationary when the absolute value of its statistical test is greater than its critical value. We thus differentiated it before our variables could be stationary because they weren't stationary at the first difference**.**

Table 5: Results of the ADF Test for Unit Root at First Difference

VARIABLES	DF test	1%	5%	10%	Remark
GDP	-4.325	-4.288	-3.560	-3.216	Stationary at First Difference
Consumption	-4.461	-4.288	-3.560	-3.216	Stationary at First Difference
Export	-6.096	-4.288	-3.560	-3.216	Stationary at First Difference
FDI1	-7.291	-4.288	-3.560	-3.216	Stationary at First Difference
Government expenditure	-4.634	-4.288	-3.560	-3.216	Stationary at First Difference
Remittances paid	-4.949	-4.288	-3.560	-3.216	Stationary at First Difference
Remittances received	-4.876	-4.288	-3.560	-3.216	Stationary at First Difference
Remittances	-7.784	-4.288	-3.560	-3.216	Stationary at First Difference
Population	-7.167	-4.288	-3.560	-3.216	Stationary at First Difference
Trade	-4.335	-4.288	-3.560	-3.216	Stationary at First Difference

Source: By authors, using data from the World Development Indicator

Test for Homoskedasticity

The Breusch-Pagan / Cook-Weisberg test has been applied to test for heteroskedasticity. Breusch-Pagan test helps to check the null hypothesis versus the alternative hypothesis. A null hypothesis is that where the error variances are all equal (homoscedasticity), whereas the alternative hypothesis states that the error variances are a multiplicative function of one or more variables (heteroscedasticity).

Table 6: Breush-Pagan

$Chi^2(1)$	3.11
Prob> chi^2	0.0776

Table 6 above shows that the probability value of the chi-square 0.0776 statistic is greater than 0.05. Therefore, the null hypothesis of constant variance can be accepted at 5% level of significance. It implies the absence of heteroscedasticity in the residuals. If heteroscedasticity is present in the data, the variance differs across the values of the explanatory variables and violates the assumption. This will make the OLS estimator unreliable due to bias.

Summary Statistics

Table 7: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
logGDP_d1	37	.0444586	.1236369	-.3798542	.3074341
logremPaid~1	37	.0295043	.15873	-.2558651	.3638954
logcon_d1	37	.0600767	.1543448	-.2738972	.4190731
logedu_d1	37	.0468093	.1567699	-.3845959	.3210449
logexport_d1	37	.0330722	.1144422	-.2074451	.3665447
logFDI1_d1	37	-1.77e+07	2.72e+08	-7.86e+08	7.74e+08
loggovexp_d1	37	.0406977	.0734316	-.1839237	.2452965
logpop_d1	37	.0277404	.0020256	.0249691	.0311794
logtrade_d1	37	-.0078225	.1585151	-.3846734	.4144459

Source: By authors, using data from the World Development Indicator

Table 7 gives a brief and summary view of the nature, minimum value, maximum values, mean and standard deviation of the variables used in this work. On an average, the mean log of GDP, remittance paid, consumption, education, export, FDI, government expenditure, population and trade in Current US dollars stands at 0.0445, 0.03, 0.060, 0.047, 0.033, -1.77, 0.041, 0.028 and -0.008 respectively. All standard diversion figures are considerably low indicating results do not so much divert from their means thus adequate for policy recommendation.

Presentation of Results on the Relationship between Remittances and GDP using Correlation Matrix

To test for the relationship between Remittance and GDP (objective 1), the correlation matrix was used.

Table 8: Correlation Matrix for GDP and Remittances

		LogGDP	LogRempaid	LogRemrec	logRem,
logGDP	Pearson Correlation	1	.503**	.095	.495**
	Sig. (2-tailed)		.001	.572	.002
	N	38	38	38	38
LogRempaid	Pearson Correlation	.503**	1	.203	.785**
	Sig. (2-tailed)	.001		.221	.000
	N	38	38	38	38
logRemrec	Pearson Correlation	.095	.203	1	.248
	Sig. (2-tailed)	.572	.221		.133
	N	38	38	38	38
logRem,	Pearson Correlation	.495**	.785**	.248	1
	Sig. (2-tailed)	.002	.000	.133	
	N	38	38	38	38

**. Correlation is significant at the 0.01 level (2-tailed).

Source: By authors, using data from the World Development Indicator

To investigate the relationship between remittance and GDP, we used the correlation matrix on table 8 above which permits us to the test the individual effect of GDP and remittances. The results show a positive (0.495) but weak and statistically significant relationship (0.002) between GDP and remittances. Furthermore, the correlation results show a strong positive (0.95) but statistically insignificant (0.572) relationship between remittances received and the GDP of Cameroon for the period 1980-2017. In addition, results show a strong, positive (0.503) and statistically significant (0.001) relationship between remittance paid and GDP at more than 99% confidence level. To further test the relationship of the group effect between remittances as a whole and GDP, we went further to run the regression result. To confirm this positive result, we will step further to run the regression analysis on table 4.9 below.

Table 9: Regression Result of Remittances and Other Variables on GDP

Source	SS	df	MS	Number of obs	=	37
				F(7, 29)	=	19.83
Model	.455191793	7	.065027399	Prob > F	=	0.0000
Residual	.095107136	29	.003279556	R-squared	=	0.8272
				Adj R-squared	=	0.7855
Total	.550298929	36	.015286081	Root MSE	=	.05727

logGDP_d1	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
logrem_d1	.0265534	.0199471	1.33	0.193	-.0142429	.0673497
logcon_d1	.6180483	.0808625	7.64	0.000	.4526658	.7834307
logexport_d1	.1043646	.1001613	1.04	0.306	-.1004883	.3092176
logFDI1_d1	-4.14e-12	3.66e-11	-0.11	0.911	-7.90e-11	7.07e-11
loggovexp_d1	.2606591	.1382154	1.89	0.069	-.0220232	.5433414
logpop_d1	1.251954	4.92431	0.25	0.801	-8.81939	11.3233
logtrade_d1	-.140574	.077938	-1.80	0.082	-.2999752	.0188272
_cons	-.0443398	.1364837	-0.32	0.748	-.3234804	.2348007

Source: By authors, using data from the World Development Indicator

The results of the group effect of Remittances and other factors put together on GDP is presented on table 9 above. The constant term is negative (-0.044) indicating that there are still some variables not included in the model which negatively influence GDP during the study period. Looking at the p-value (0.748), we observe that it is more than 10%, indicating that the effect of other factors not included in the model on GDP is not significant even at 10%.

When looking at the effect of the log of the all remittances on GDP, the results gives a positive value (0.0266), which means that increase in remittance receive will lead to increase the GDP and therefore increase in the economic growth of Cameroon. Increased remittances by 100% will lead to increase GDP by 2.7%. The p-value of this result (0.193) however shows a statistically insignificant effect of remittances on the GDP of a country. This result thus confirms the positive correlation results above. However, the correlation result is statistically significant. The coefficient of other factors like consumption, export, government expenditure and population are all positive meaning increase in these variables will lead to increase in the GDP of a country. Trade and foreign direct investment on the other hand contrary to expectation have a negative coefficient with GDP meaning increase in the trade and foreign direct investment of Cameroon led to the fall in its GDP. Of all the variables, only consumption, government expenditure and trade have a statistically significant effect on GDP during our study period.

The coefficient of multiple determinations (Adjusted R-squared) is 0.8272. This shows that 8s% of the variation in the GDP of Cameroon during the study period is accounted for by the Variables included in the model. The F-ratio or F-statistics (0.000) shows that the overall model is statistically significant at 1% percent

level of significance. We can thus conclude that our result is 99% reliable and can be conveniently used for policy recommendation.

Presentation of the Effect of Remittances Paid and GDP

This section presents results of the effects of remittances that leave Cameroon to other countries on the economic growth (GDP) of Cameroon (objective 2) within 1980 -2017.

Table 10: Linear Regression Results

Source	SS	df	MS	Number of obs	=	37
				F(7, 29)	=	19.36
Model	.453308506	7	.064758358	Prob > F	=	0.0000
Residual	.096990423	29	.003344497	R-squared	=	0.8237
				Adj R-squared	=	0.7812
Total	.550298929	36	.015286081	Root MSE	=	.05783

logGDP_d1	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
logrempaid~1	.0895794	.0826549	1.08	0.287	-.0794688	.2586277
logcon_d1	.5915917	.0881832	6.71	0.000	.4112368	.7719465
logexport_d1	.1406037	.1006394	1.40	0.173	-.065227	.3464345
logFDI1_d1	-1.35e-11	3.73e-11	-0.36	0.719	-8.98e-11	6.27e-11
loggovexp_d1	.1648995	.1551042	1.06	0.296	-.1523243	.4821233
logpop_d1	1.589666	5.072707	0.31	0.756	-8.785185	11.96452
logtrade_d1	-.1924075	.0905282	-2.13	0.042	-.3775585	-.0072564
_cons	-.0509286	.1400836	-0.36	0.719	-.3374317	.2355744

Source: By authors, using data from the World Development Indicator

The results of the group effect of remittance paid and other factors put together on GDP is presented on table 10 above. The constant term is negative (-0.051) indicating that there are still some variables not included in the model which negatively influence economic growth during the study period. Looking at the p-value (0.719), we observe that it is more than 10%, indicating that the effect of other factors not included in the model on GDP is not significant even at 10%.

When looking at the effect of the log of the remittances paid on GDP, the results gives a positive value (0.09), which means that increase in remittances paid will lead to increase GDP and therefore increase economic growth. Increased remittances by 100% will lead to increase GDP by 9%. The p-value of this result (0.29) however shows a statistically insignificant effect of remittances paid on the GDP of the country. This result confirms the positive correlation results above. However, the correlation results show a statistically significant result between remittances paid and GDP. The coefficient of other factors like consumption, export, government expenditure and population are all positive meaning increase in these variables will lead to increase in the GDP of the country. Trade and foreign direct investment on the other hand contrary to expectation have a negative coefficient with GDP meaning increase in trade and foreign direct investment of Cameroon led to the fall in its GDP. Of all the variables, only consumption and trade have a statistically significant effect on GDP during our study period.

The coefficient of multiple determinations (Adjusted R-squared) is 0.8237. This shows that 82% of the variation in the GDP of Cameroon during the study period is accounted for by the Variables included in the model. The F-ratio or F-statistics (0.000) shows that the overall model is statistically significant at 1% percent

level of significance. We can thus conclude that our result is 99% reliable and can be conveniently used for policy recommendation.

Presentation of Results on Remittance Received and GDP

This section presents results on the effect of the remittances Cameroonians received from abroad between 1980 and 2017 on the GDP of Cameroon (objective 3).

Table 11: Remittance Received and GDP

Source	SS	df	MS	Number of obs	=	37
				F(7, 29)	=	20.42
Model	.457479861	7	.065354266	Prob > F	=	0.0000
Residual	.092819068	29	.003200658	R-squared	=	0.8313
				Adj R-squared	=	0.7906
Total	.550298929	36	.015286081	Root MSE	=	.05657

logGDP_d1	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
logremrec_d1	.0518852	.0326159	1.59	0.122	-.0148217	.1185922
logcon_d1	.6094031	.0804125	7.58	0.000	.4449411	.7738651
logexport_d1	.1264667	.0976012	1.30	0.205	-.0731501	.3260835
logFDI1_d1	3.32e-11	4.42e-11	0.75	0.459	-5.73e-11	1.24e-10
loggovexp_d1	.233488	.1357541	1.72	0.096	-.0441604	.5111363
logpop_d1	-.2569862	4.810793	-0.05	0.958	-10.09616	9.58219
logtrade_d1	-.1473036	.0769868	-1.91	0.066	-.3047594	.0101521
_cons	.0010021	.1333006	0.01	0.994	-.2716282	.2736325

Source: By authors, using data from the World Development Indicator

The results of the group effect of the remittances received and other factors put together on GDP is presented on table 11 above. The constant term is positive (0.001) indicating that there are still some variables not included in the model which positively influence GDP during the study period. Looking at the p-value (0.994), we observe that it is more than 10%, indicating that the effect of other factors not included in the model on GDP is not significant even at 10%.

looking at the effect of the log of the remittances received on GDP, the results gives a positive value (0.052), which means that increase in remittance receive will lead to increase GDP. Increased remittances by 100% will lead to increase GDP by 5.2%. The p-value of this result (0.122) however shows a statistically insignificant effect of remittances received on the GDP of the country. This result confirms the positive correlation results above. The coefficient of other factors like consumption, export, foreign direct investment, government expenditure are all positive meaning increase in these variables will lead to increase in the GDP of a country. Trade and population on the other hand contrary to expectation have a negative coefficient with GDP meaning increase in the trade and population of Cameroon led to the fall in its GDP. Of all the variables, only consumption, government expenditure and trade have a statistically significant effect on GDP during our study period.

The coefficient of multiple determinations (Adjusted R-squared) is 0.7906. This shows that 82% of the variation in the GDP of Cameroon during the study period is accounted for by the Variables included in the model. The F-ratio or F-statistics (0.000) shows that the overall model is statistically significant at 1% percent level of significance. We can thus conclude that our result is 99% reliable and can be conveniently used for policy recommendation.

V. Conclusion And Recommendations

This work was out to investigate the effect of remittances on the GDP of Cameroon. Specifically, this work sets out to investigate the relationship between the remittances and the GDP of Cameroon; investigate the effect of remittances paid on the GDP of Cameroon and the effect of remittances received on the GDP of Cameroon within the period 1980-2017. Correlation results show that, there exist a positive but weak and significant relationship between remittances and GDP (objective 1). The regression results showing the group effect of remittances and other variables on GDP show a positive but statistically insignificant effect of remittances on GDP. The correlation results also show that remittances paid also affect GDP positively and significantly while its regression results also show a positive but insignificant relationship between them (objective 2). Both the correlation like the regression results further show that remittances received also has a positive but statistically insignificant effect on the GDP of the Cameroon (objective 3). Of all factors, and in all models, only consumption and government expenditure showed a positive and statistically significant effect on the GDP of Cameroon between the periods of 1980- 2017. Trade on the other hand shows a negative and statistically insignificant relationship with the GDP of Cameroon. We therefore reject the null hypothesis that remittances have no statistically significant effect on GDP in Cameroon and accept the alternative, concluding that Remittances, and remittances paid all have positive and statistically significant effects on the GDP of Cameroon while remittances received has a positive but statistically insignificant effect on the GDP of Cameroon within the period of 1980 -2017.

In terms of recommendations, we propose to the Cameroonian government to: create a favourable atmosphere to facilitate the sending of funds by migrants; to set up solid and reliable institutions capable of effectively fighting corruption and other forms of fraud; Increase its spending on major infrastructure projects such as roads, schools, hospitals, and so on.

To banks and Money Transfer Operators, we propose they; moderate their tedious conditions for sending and receiving money.

To Cameroonians in the diaspora, we propose they mobilise in order to create a Cameroonian investment and development bank, in order to finance and promote local business projects.

Finally, to recipient families and individuals, we propose they invest the remitted monies in productive or beneficial activities.

References

[1]. Alfieri, A., Havinga, I., & Hvidsten, V. (2005). *Definition of remittances and relevant BPM5 flows, Department of Economic and Social Affairs.* New York: Statistics Division, United Nations.

[2]. Baye, M. F. (2005). Structure of Sectoral Decomposition of aggregate poverty changes in Cameroon. *Paper presented at the international conference on shared Growth in Africa-Accra* (pp. pp. 21-22). Accra: Organized Cornell University/ISSR/The World Bank.

[3]. Blouchoutzi, A., & Nikas, C. (2014). *Emigrants' remittances and economic growth in small transition economies, the case of Moldava and Albana.* East-West J Econ Bus 18(2).

[4]. Das, A., & Serieux, J. (2010). Remittance and Reverse Flows in Developing Countries. *IDEAS Working paper series No 02/2010*.

[5]. Floodlist. (2020, August 23). *Cameroon – Floods in Douala Leave Hundreds Displaced*. Récupéré sur Floodlist.

[6]. Giuliani, P., & Ruiz Arranz, M. (2009). Remittances, financial development and growth. *J Dev Econ*, 90(1):144-152.

[7]. Gupta, S., Patttillo, C., & Wagh, S. (2007). Impact of Remittances on Poverty and Financial Development in Sub- Saharan Africa. *International Monetary Fund*.

[8]. Happi, C. (2020). Inondations : plus de 1500 familles sans abri dans l'Extrême-nord. *Actu Cameroon*.

[9]. Imai, K., Gaiha, R., & Ali, A. a. (2012). *Remittances, growth and poverty: New evidence from Asian countries, pdf.* <http://www.ifad.org/operations/projects/regions/pi/paper/15.pdf> Retrieved 10 May 2015.

[10]. Larsson, P., & Ångman, J. (2014). *Remittances and Development - Empirical evidence from 99 developing countrie.* Uppsala University, Department of Economics.

[11]. Manuela, P., & Massimo, G. (2018). *Essentials of Time Series for Financial Applications.* Academic Press.

[12]. Ofeh, A. M., & Muandzevara, T. A. (2017). Investigating the Effects of Migrant Remittances on the Economic Growth of Cameroon. *International Journal of Economics and Finance; Volume 9, No.2*.

[13]. Rahman, M. M., & Yeoh, B. S. (2008). The social organization of Hundi'. *Asian Population Studies*, 4(1), 5–29.

[14]. Ratha. (2003). *Workers remittances, an important and stable source of external development finance in World Bank, Global development finance.* Striving for Stability in Development Finance, 1, 157-7.

[15]. Ratha. (2007). *Leveraging remittances for Development, Migration Policy Institute.* Washington D.C.: World Bank.

[16]. Sutradhar, S. R. (2020). The impact of remittances on economic growth in Bangladesh, India, Pakistan and Sri Lanka. *International Journal of Economic Policy Studies*, 14, 275-295.

[17]. Tabi, A. F. (2009). Professional Migration. Case of Cameroon. *Paper presented at the seminar organised within the framework of the partnership for the management of professional migration.* Cotonou.

[18]. Ugrinowitsch, C., Carnevale, R., Lamas, L., & Tricoli, V. (2005). Short- term effects on lower- body functional power development: weightlifting vs. vertical jump training programs. *The Journal of Strength and Conditioning Research 19 (2)*, 433-437.

[19]. *World Bank.* (2020, April 22). Récupéré sur World Bank Predicts Sharpest Decline of Remittances in Recent History: http://blogs.worldbank.org/peoplemove/

[20]. *World Bank.* (2014). Migration and Development Brief. Issue 23, Washington DC.: World Bank.

[21]. *World Bank.* (2014). Migration and Development Brief. Issue 22. Washington DC.: World Bank.

[22]. Yang, D. (2011). Migrant Remittances. *Journal of Economic Perspectives*, 25,3, pp. 129-152.

[23]. Zourkaleini, Y., Mimche, H., Nganawara, D., Nouetagni, S., Seke, K., Chouapi, K. N., . . . Tjomb, L. J. (2013). *Shedding Light on the South Migrant profiles and the impact of migration on human development in Cameroon.* International Organisation for Migration.

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