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The Impact of Government Expenditure and Institutional Quality on Remittance Inflow in Selected Sahel Countries

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Abstract

The study investigated the impact of Government Expenditure and Institutional Quality on Remittance Inflow in Selected Sahel Countries which include Burkina Faso, Cameroon, Chad, the Gambia, Guinea, Mauritania, Mali, Niger, Nigeria and Senegal. The study utilized data from 2006 to 2022. The research used various econometric methods including descriptive statistics, unit root test, Hausman test, Panel Least Square estimation, and the Fixed as well as the Random effect model. The findings derived from the investigation showed that institutional quality (rule of law) exert positive influence on inflow of remittance,

human capital development have a positive impact on inflow of remittance, gross capital formation and government expenditure also impact positively on remittance in those countries within the Sahel region. Based on these findings we recommend that policymakers can explore ways to channel remittance funds into initiatives that strengthen governance and institutions, consider strategies to direct investments in ways that support governance and institutional development, focus on allocating resources to areas that strengthen governance and institutions.

Keywords: Inflows of Remittances, Institutional Quality, Government Expenditure, Sahel Countries, Fixed Effect Model

1. Introduction

Remittances have been increasingly important for economic development in underdeveloped countries over the last few decades. Remittances, according to evidence, boost welfare and economic growth since they provide access to financing, boost household consumption, and lower income distribution disparities. Most African nations have changed their investment laws and economic policies in an effort to create a favourable environment for remittances flow as a good institutional quality will influence inflows of remittances and promote development of human capital. Between the Saharan-desert to the North and the Sudan Savanna to the South, the Sahel is a transitional area. It spans several West African nations, including portions of Senegal, Mauritania, Mali, Burkina Faso, Niger, Chad, Sudan, Guinea, The Gambia, and Nigeria especially the States that lie along the northern border such Borno, Yobe, and Adamawa which are located within the Sahel region characterised by a dry and semi-arid environment.

According to the development literature, the expansion of any economy depends on institutional quality, remittance inflows, and human capital development. Remittances, according to empirical data from many studies like Jibrán *et al.* (2016), boost human capital development and foster growth as well as provide financial benefits to underdeveloped nations should they be employed for profitable investment to expand and support entrepreneurship. Remittances, according to Gundlach (1997), have a positive impact on several economic measures since more flow of remittances may raise labour productivity, investment level, consumption level, and economic growth. Still, growth of human capital depends on strong economic institutions. According to De Muro and Tridico (2003), first-rate and strong institutions give people greater chances to develop their competencies. Although institutions are essential in forming and implementing laws, it is the quality of the institutional structure that shapes interest as well as group reaction towards inflows of remittances at national and regional levels.

According to Alonso and Garcimatiri (2009), there is great need to improve the quality of institutional structure by means of the rule of law, transparency, responsibility, good and efficient governance in maintaining remittance inflows and human capital development. Good and efficient government will inspire the acceptance of remittance inflow rules, so promoting

human capital development result. Empirical results of Jankauskas and Seputiene (2009) show that nations with solid institutions in form of political stability, government effectiveness, rule of law are amenable to improved human capital development. Weak institutional framework in African countries has dawdled ethical attempts to achieve human capital development as a result of inconsistency in policies, foreign dependence, discontinuity, political instability inadequate funding and ethnic fractionalisation, according to Osabuohien *et al.* (2013). Emmanuel *et al.* (2024) say that government expenditure should be regularly raised; but, this should be paired with fiscal discipline by the way the Nigerian government implements its legislative framework.

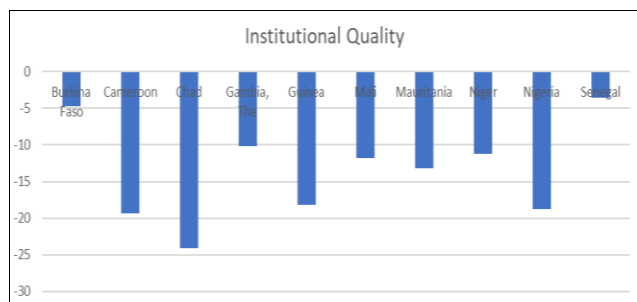


Fig 1: Trend of institutional quality in the selected Sahel countries

The above trend shows the institutional quality of the selected Sahel countries. Control of Corruption which is used as the proxy captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5. From the trend we can keenly observed that all the countries used in the study performed poorly on the issue of corruption as they all have negative rating across the period of the study. Furthermore, we observed that Chad have the worst rating followed by Cameroon. Burkina Faso and Senegal performed better as their rating although negative was not too low compared to others.

1.1 Objectives of the study

The research seeks to;

1. Examine the effect of institutional quality on remittance in the Sahel region.
2. Investigate the effect of government expenditure on remittance in the Sahel region.

2. Literature Review

2.1 Conceptual review

2.1.1 Remittances

Remittances are monetary transfers sent from migrant to family back home which could be done through formal and informal channels. It is the act of transferring or sending certain amount of funds by one party to the other either across countries or domestically. When migrants send part of their earnings in the form of either cash or goods to support their families it is known as workers' or migrant remittances; which represent the largest source of foreign income for many developing economies. In many African households and nations remittances has served as an important source of finance and foreign exchange which

helps to stabilize irregular incomes and to build human and social capital. Remittances are important source of finance.

2.1.2 Institutional quality

Institutional quality is a broad concept that captured law, individual rights and high quality government regulation and service. Institutional quality and economic development reinforce each other over the long term. Institution is simply a set of social factors, rules, beliefs, values and organizations that jointly motivate regularity in individual and social behaviour (Grief, 2006). Institutions can be categorized into formal and informal.

2.1.3 New Institutional Theory

The new institutional theory gives credence to institution. The new institutional theory assumes institutions to be endogenously determined. This means that institutions actuate economics performances across countries (North, 1994). The new institutional theory admits that the reason why some countries develop faster is as a result of their institutional framework which fosters efficient behavior, while others face difficulties as their institutions do not prevent abusive behavior and inefficient methods (Leite *et al.* 2014). As postulated by Gagliardi (2008), creation of institutions necessitates transaction costs which will bring about higher benefits to the agents for their collective action.

2.2 Empirical Review

Umar (2022) examined the relationship between remittances, institutions and human development in sub-Saharan African (SSA) countries using data from 2004 to 2018. The findings indicate a positive and significant impact of remittances on human development in SSA. The results further reveal enough relationship between institutions and remittances in stimulating human development. The findings also establish that the marginal significance of remittances as a source of decline in human capital development in countries with well-developed institutions. Xia, Qamruzzaman and Adow (2022) assessed the effect of remittances on human capital development in the top 10 remittance recipients for the period, 1980-2019 which was implemented using symmetric and asymmetric estimations. The study documented a positive and significant relationship between remittances and human capital development. Similar linkage was revealed for FDI and gross capital formation. Asymmetric assessment detected asymmetric effects running from remittances, foreign direct investment and gross capital formation to human capital development, both in the long-run and the short-run. In Sri Lanka, Mohamed and Sivarajasingham (2021) investigated the impact of remittances on human capital formation in using time-series data from 1975–2020. The study found a positive and statistically significant association between remittances and human capital formation in both the long and short run. The directional causality confirms the feedback hypothesis between remittances and human capital formation. Sahoo and Sethi (2020) examined the relationship between human development, remittances and other macroeconomic variables such as life expectancy, human capital, foreign direct investment inflation, economic growth and financial development in 31 Sub-Saharan African (SSA) countries. The result indicates that remittances have a positive and significant effects on human development. In addition, government expenditure, human capital, inflation and economic growth have positive effects on human development. It was further observed that there is

a unidirectional causality between remittance and human development. However, human development and inflation rate show bi-directional relationship with each other. Borja (2020) assessed the relationship between remittances and human development in Latin American and Caribbean countries. Findings suggest a positive relationship between remittances and human capital development. Additionally, the study suggests that corruption constrains the effectiveness of remittances in improving human capital development. Nasim (2019) explored the role of remittances on capital formation in SAARC nations. Findings indicate that remittance inflows do not accumulate domestic capital, specifically in the long run. Azam and Raza (2016) examined the influence of workers' remittances on human capital development and employed a sample of 17 countries and panel data from 1996 to 2013. The results indicate that workers' remittances positively and significantly affect human capital development. In Peru, Salas (2014) also report a positive relationship between remittances and human capital formation. Hassan *et al.* (2013) examined the relationship between remittances and human capital formation in Pakistan for the period between 1981 and 2011. It was found that worker's remittances have a negative effect on human capital formation. Koska *et al.* (2013) investigated the role of remittances on human capital development in Egypt. The study reported that remittances fosters human capital formation. Implied is that the more likelihood of receiving remittances, the greater the chances of enrolling in school, improve human capital in the nearest future. The study by Adenutsi (2010) found that remittances have a positive and significant effect on human capital development in Sub-Saharan Africa countries in the long run.

3. Methods

This study adopted the *expo facto* research design. The study employed secondary panel data which were sourced from the World Bank's World Development Indicators (WDI) from 2006 to 2022 from the following Sahel countries; Burkina Faso, Cameroon, Chad, The Gambia, Guinea, Mali, Mauritania, Niger, Nigeria and Senegal. The functional form of the model is given as;

$$RMT_{it} = f(ROL_{it}, HCD_{it}, GCF_{it}, GEXP_{it}) \quad (1)$$

The econometrics form is given as;

$$RMT_{it} = \alpha_i + \sigma_{1i}ROL_{it} + \sigma_{2i}HCD_{it} + \sigma_{3i}GCF_{it} + \sigma_{4i}GEXP_{it} + \epsilon_{it} \quad (2)$$

Where;

RMT is remittance, ROL is rule of law which is the proxy for institutional quality, GCF is Gross Capital Formation and GEXP is Government Expenditure. Also, σ_1 , σ_2 , σ_3 and σ_4 are the coefficients of the variables to which they are attached, ϵ_{it} is error term.

4. Data Analysis and Discussion of Result

The descriptive statistics for the data used in the study is presented in Table 1. From the table it can be observed that the mean and standard deviation of human capital development (HCD) is 36.18 percent and 15.4 percent, remittances (RMT) was 3.9 percent and 4.5 percent, gross fixed capital (GFC) and government expenditure (GEXP)

displayed an average and standard deviation values of 25 percent and 8.6 percent, 85 percent and 9.4 percent respectively. While the measure of institutional quality that is rule of law (ROL) showed an average value of -0.81 its standard deviations is 0.39 percent. Their values showed that the deviation from their respective mean is not much implying that they are not affected by extreme values. All the variables have a positive skewness except for rule of law and government expenditure. HCD, RMT and GFC are leptokurtic in feature due to their very high kurtosis values which are clearly greater than 3, GEXP is mesokurtic while ROL is platykurtic as their kurtosis values are less than 3.

Table 1: Descriptive statistics

	HCD	RMT	ROL	GFC	GEXP
Mean	36.18266	3.893013	-0.809502	24.96656	84.86696
Median	36.75343	2.215800	-0.771047	22.28326	84.88802
Maximum	149.7098	27.07507	-0.075511	66.46599	105.2856
Minimum	10.20834	0.000000	-1.625773	10.52243	55.66872
Std. Dev.	15.35444	4.460489	0.393990	8.623331	9.443409
Skewness	2.663309	2.413838	-0.183118	1.709792	-0.442246
Kurtosis	20.48453	11.43009	1.948009	7.113335	3.210411
Observations	170	170	170	170	170

Source: Author's Computation

Table 2: Levin, Liu and Chu (LLU) test

Unit Root Test at Levels			
Variable	ADF Test Statistic	P-Value	Decision
HCD	-1.66505	0.0480	Stationary
RMT	-479.497	0.0000	Stationary
ROL	-1.38444	0.0831	Stationary
GCF	0.58938	0.7222	Non-Stationary
GEXP	-1.46103	0.0720	Stationary
Unit Root Test at First Difference			
Variable	ADF Test Statistic	P-Value	Decision
GCF	-6.67337	0.0000	Stationary

Source: Author's Computation

The Levin, Liu and Chu (LLU) test was used to check for unit root for the variables employed in the study. The result presented in Table 2 showed that the variables are stationary at level I(0) and order one I(1). This is because their p-values at each level are smaller than the 5% significance level established for this investigation. We therefore proceed to check for cointegration among the variables used in the study.

Table 3: Cointegration test

Pedroni Residual Cointegration Test				
Null Hypothesis: No cointegration				
			Weighted	
	Statistic	Prob.	Statistic	Prob.
Panel v-Statistic	-0.657671	0.7446	-0.623179	0.7334
Panel rho-Statistic	1.707163	0.9561	1.531833	0.9372
Panel PP-Statistic	-0.098332	0.4608	-0.667709	0.2522
Panel ADF-Statistic	0.478191	0.6837	-0.121758	0.4515
	Statistic	Prob.		
Group rho-Statistic	2.906282	0.9982		
Group PP-Statistic	-0.190647	0.4244		
Group ADF-Statistic	0.205156	0.5813		

Source: Author's Computation

The cointegration analysis aims to uncover causal relations among variables by determining if the stochastic trends in a group of variables are shared by the series. Pedroni (2004)

introduced seven test statistics that test the null hypothesis of no cointegration in nonstationary panels. The seven test statistics allow heterogeneity in the panel, both in the short run dynamics as well as in the long run slope and intercept coefficients. From the results in Table 3, no evidence of cointegration was found among variables in the models as probability values of each of the test were greater than 5% level of significance. As a result, the study applies the Panel Ordinary Least Square regression technique and with the aid of Hausman test to determine the more appropriate model between the fixed and the random effect models.

Table 4: Panel least square estimates

Dependent Variable: RMT				
Method: Panel Least Squares				
Sample: 2006 2022				
Periods included: 17				
Cross-sections included: 10				
Total panel (balanced) observations: 170				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROL	4.270175	0.563624	7.576279	0.0000
HCD	0.173581	0.014214	12.21234	0.0000
GFC	0.011570	0.028529	0.405548	0.6856
GEXP	0.060671	0.026638	2.277602	0.0240
C	-4.368766	2.848421	-1.533750	0.1270
Root MSE	2.726630	R-squared		0.624120
Mean dependent var	3.893013	Adjusted R-squared		0.615007
Hannan-Quinn criter.	4.940259	F-statistic		68.49237
Durbin-Watson stat	0.229987	Prob(F-statistic)		0.000000

Source: Author's Computation

The panel least square estimates is presented in Table 4, from the model output we observed that institutional quality (rule of law) have a positive and significant impact on remittance inflows. Specifically, a one percent increase in the rule of law index leads to an increase of approximately 4.27 units in remittance inflows. This suggests that a stronger legal framework and enforcement enhance confidence in the economic and social environment, encouraging remittances.

Human capital development have a positive and highly significant impact on remittance inflows. A one percent increase in human capital development leads to an increase of approximately 0.17 percent in remittance inflows. This suggests that better education and health outcomes can lead to significant improvement on remittance inflow.

The coefficient for gross fixed capital is positive but not statistically significant. One percent increase in gross fixed capital will increase remittance inflows by 0.01 percent. This indicates that changes in gross fixed capital do not significantly affect remittance inflows.

The coefficient for government expenditure is positive and significant. This suggests that an increase in government expenditure will lead to an increase in remittance inflows. A one percent increase in government expenditure results in an increase of approximately 0.061 units in remittance inflows. Higher government spending might create a more stable and supportive environment for economic activities, thus encouraging remittances. Although, there is a joint significance from the variables used in the model and they also have a high predictive influence on the dependent variable based on the R² value of 62 percent.

To determine the optimal approach for resolving the issue of

unobserved effects the Hausman test (Hausman, 1978) is used. Thus, the Hausman model selection criteria were used to decide between fixed and random effect models. The individual effects and the regressors' lack of cointegration serves as the foundation for the Hausman selection test. This test's main goal is to determine whether we can accept the null hypothesis, according to which random effects is the best option. Otherwise, the fixed effects model is the appropriate. When the Hausman test P-value is less than 0.05, we reject the null hypothesis and accept the fixed effects model as the most appropriate for the study. The null and alternative hypotheses for the test are stated thus;

H₀: Random effect model is appropriate

H₁: Fixed effect model is appropriate

Table 5: Hausman test

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	7.412200	4	0.1156

Source: Author's Computation

From the Hausman test presented in Table 4, we fail to reject the null hypothesis that the random model is appropriate for the study based on the p-value of 0.1156 which is greater than 0.05, hence we proceed to estimate the random effect model.

Table 6: Random Effect estimates

Dependent Variable: RMT				
Method: Panel Least Squares				
Sample: 2006 2022				
Periods included: 17				
Cross-sections included: 10				
Total panel (balanced) observations: 170				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROL	-0.237127	0.965544	-0.245589	0.8063
HCD	0.146708	0.014023	10.46228	0.0000
GFC	0.064477	0.027420	2.351435	0.0199
GEXP	0.052249	0.029520	1.769974	0.0786
C	-7.651261	3.224979	-2.372500	0.0188
Root MSE	1.796674	R-squared		0.457243
Mean dependent var	0.629935	Adjusted R-squared		0.444085
Sum squared resid	548.7663	F-statistic		34.75086
Durbin-Watson stat	0.443468	Prob(F-statistic)		0.000000

Source: Author's Computation

The random effect model is presented in Table 6 above. From the result it can be observed that the random effect model is almost similar to the panel least square model in Table 4. In this instance rule of law have a negative and insignificant impact on remittance inflow. Human capital development have a positive and significant impact on remittance inflow while gross capital formation and government expenditure are positive and significant. There is also joint significance among the variables in the model. The variables also explains about 46 percent of variation in remittance inflow.

From the output for model institutional quality (rule of law) exert positive influence on inflow of remittance signifying that strong rule of law creates a stable and predictable environment, increasing migrants' confidence in sending remittances back home. Legal stability reduces the risks

associated with money transfers. While Hamma (2019) found a positive impact, Osinubi (2022) found a negative impact. It helps with the control of corruption, this is expected as the rule of law means that anyone can be punished by the law irrespective of status in society. This creates an automatic checks on the leaders and followers in the Sahel region. The positive impact of human capital development on inflow of remittance shows that a better human capital development improves education and health outcomes, increasing economic prospects and encouraging remittances. Migrants may be more inclined to send money to support improvements in their home countries.

Gross capital formation and government expenditure also impact positively on remittance. The lack of significance for gross fixed capital suggests that investments in fixed assets do not directly influence migrants' decisions to send remittances. The effectiveness and allocation of these investments may be more critical factors. Increased government expenditure can signal economic stability and improvements in infrastructure and public services, creating a conducive environment for remittances. Migrants may view higher government spending as a positive indicator of their home countries' economic future especially those countries within the Sahel region.

5. Conclusion

Institutional quality (rule of law) exert positive influence on inflow of remittance signifying that strong rule of law creates a stable and predictable environment, increasing migrants' confidence in sending remittances back home. Human capital development have a positive impact on inflow of remittance showing that a better human capital development improves education and health outcomes, increasing economic prospects and encouraging remittances. Gross capital formation and government expenditure also impact positively on remittance. The lack of significance for gross fixed capital suggests that investments in fixed assets do not directly influence migrants' decisions to send remittances. Increased government expenditure can signal economic stability and improvements in infrastructure and public services, creating a conducive environment for remittances in those countries within the Sahel region. Based on these findings we recommend that policymakers can explore ways to channel remittance funds into initiatives that strengthen governance and institutions, consider strategies to direct investments in ways that support governance and institutional development, focus on allocating resources to areas that strengthen governance and institutions.

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